

TECHNICAL REPORT NO. UKR-13

**LEGAL AND ECONOMIC APPRAISAL  
OF THE RAILROAD HEALTH INSURANCE  
EXPERIMENT IN UKRAINE**

May- July, 1996

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Prepared under Task Order 318 by:  
Alexander Telyukov, Ph.D.

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## **EXECUTIVE SUMMARY**

This report presents findings from the study whose purpose was to review key legal and economic features of the experimental health insurance plan for the railroad workers, endorsed by the Ukrainian government in December 1995. Specifically, it assesses conceptual and legal consistency of the experiment's framework, projects its impact on the national health care system, appraises its sustainability and underlying financial mechanisms, fills some gaps and recommends improvements in the initially proposed design and operational layout. Finally, the report proposes extensions that would help increase its value as a pilot demonstration in the context of future national health care reforms.

Based on the findings from this study, the experiment is recommended to the government of Ukraine as a valuable initiative, promoted by a group of dedicated professionals prepared to work hard to make it a success. The thrust of this initiative is twofold: (1) to improve the well-being of a core cohort of Ukrainian workers in one of its most vulnerable aspects, i.e. access to quality health care services; (2) to increase chances for economic and professional survival for doctors and health professionals, who represent one of the best established segments of the national system of health service delivery. The experiment seeks to mobilize financial resources, scarce as they are in Ukraine's currently sluggish economy, but, above all, resources of human motivation to make the health care sector more sustainable, equitable, and efficient. If adjusted for certain inconsistencies in design, targeted for a carefully defined set of priority goals, backed up with professionally developed economic and financial mechanisms, and enhanced through competent administration and oversight, the railroad health insurance experiment (RHIE) will become an impressive pilot ground for improving financing and delivery of medical services. The experiment would generate practices and experiences that may pave the way to the health sector reforms nation-wide.

Following guidelines are proposed for RHIE in the report:

1. The experiment should align its legal framework and economic mechanisms in ways that would ensure its compatibility, or at least minimize clashes, with future national health insurance. Since at present reforms are at the embryonic stage, configuration of the national systems is hard to project. For that reason, RHIE should be prepared to lead the way and make reconciliatory adjustments retrospectively, as the national system takes its final shape. In order to benefit from RHIE trailblazer's experience, the government may want to invite key managers of the experiment to sit on task forces and panels of experts, assigned to develop the concepts and blueprint for the national health care reform.
2. To offset adverse risk and case selection for the MOH system -- a problem likely to arise from the implementation of RHIE -- the designers of the experiment should be required:
  - (1) to gradually load the risk pool with railroad retirees and dependent family members;
  - (2) to enable reimbursement of costs for out-of-the-network referrals.

3. The only realistic way to accommodate payroll tax earmarked to health insurance, is to levy it on the Social Benefit Fund (SBF) — a part of net profits of the railroads. Opposite to charging the new tax to operating costs, this will spare the rest of the economy from bearing the costs of railroad health insurance. The experiment should begin with 7.6 percent contribution rate, which will account for 34.3 percent of SBF, enabling 39 percent of the industry-wide health spending out of health insurance monies, and limiting enrollment to railroad employees. Over 6 to 12 months eligibility would be expanded to include children and retirees. In a mid-term perspective (1 to 3 years) enrollment would be extended to spouses. Significant correction in the proposed time line is likely to result from the introduction of territory-based mandatory health insurance. If and once it happens, it would generate substantial savings for the *Railroad Transportation Ukraine (RTU)* health insurance plan due to coordination of benefits. This would make full family coverage more affordable, thus making it happen sooner. These projections are based on the assumption of non-degrading financial performance of the railroads.
4. RHIE should not boil down to a fundraising effort, revolving around a newly mandated payroll tax. Its primary goal is a *comprehensive* restructuring of health care financing and delivery. The target here is to create managed competition among autonomous, financially motivated providers of services by facilitating market entry, introducing competitive contracting, incentive-based methods of reimbursement, and enforcing consumer choice. The experiment should contribute to gradual integration of RTU- and MOH-affiliated health care networks.
5. A Supervisory Committee should be set up to oversee and coordinate RHIE. Representatives of the Cabinet of Ministers, Insurance Supervisory Committee of Ukraine, MOH, the RTU Central Medical Service (CMS/RTU), *TransMedStrakh - Ukraine* Company (TMSUC) should be appointed members of the Committee. *ZdravReform* would make itself available for participation in the Committee's proceedings. This Report would be circulated to members of the Committee, translated professionally and with the elements of cultural/professional adaptation. *ZdravReform* will testify at the Committee's inaugural session in September to enhance RHIE-related planning and decision-making. Graphic presentation set will be developed for that session.

The following activities are set out for the initial stage of RHIE:

- A. Population and patient survey to estimate the degree of consumer satisfaction with services available from CMS/RTU versus MOH providers. This survey will allow to test a conventional yet unsubstantiated notion that railroad employees prefer industry-based services. Under this notion, CMH argues that targeting insurance reimbursement under RHIE to CMS/RTU network is in the workers' interests. Also, findings from the survey will allow to project cross-boundary flows of patients under alternatively established levels of out-of-the-network reimbursement. This is important for setting the pace of integration between the two provider networks and the intensity of structural adjustment in the CMS/RTU network, that may be required if it opens up to external competition.

- B. Cost-accounting work to implement a standard methodology of in- and outpatient service costing. Cost data resulting from the application of modern methodologies will be used to create consistent rate schedules and make the system cost-transparent for the main payors, who would then be able to introduce competitive contracting, based on cross-sectional cost comparisons. Also, reliable cost data will become a powerful tool of financial management for providers, seeking rationalization. Resource intensity scales will be based on 1996 costs, studied on a sample of up to 20 facilities, representative of the central, railroad, junction, and local layers of the CMS/RTU network.
- C. Development of evaluation criteria to monitor RHIE progress towards higher efficiency, consumer and provider satisfaction. Behavioral responses of the main stakeholders should be measured to see if the incentives are set correctly and how effectively they are being implemented.
- D. Development of an MIS system that would integrate patient registration, clinical utilization, cost accounting, billing and payment, and quality assurance modules. The FINECO/FINFACT database, designed and currently used by TMSUC for its voluntary health insurance plan and representing a good working prototype, will be adjusted and extended.
- E. Pilot demonstration of fundholding general practices. Two physician practices will be created on an experimental basis in L'viv Oblast within CMS/RTU network and gradually turned into full fundholders. RHIE will design Clinical Practice Guidelines for GPs; help identify and hire key staff; designate physical plant; arrange open enrollment; calculate and negotiate capitation rates; assist in establishing contractual relations with referral providers which would lead to creation of an integrated managed care plan; monitor referral and utilization patterns; track cost flows; ensure financial stability by instituting an outlier reimbursement mechanism.
- F. Development of quality assurance and appropriateness criteria, targeted at clinical outcomes and actively contributing to the improvement of clinical practice. In particular, RHIE will develop admission and discharge criteria for conditions that constitute over 50 percent of hospital admissions. The experiment will design a list of GPs competencies which will lead to development of specialist referral criteria. An oversight body will be set up to control the implementation of clinical practice improvement instruments.

A time line and scope of effort implicated by the proposed activities would be discussed with the leaders of the experiment and the RHIE Supervisory Committee.

## ACKNOWLEDGEMENTS

While inaccuracies and errors are solely the responsibility of the author, substantive output from this study is a product of joint effort by a group of committed professionals. The author gratefully acknowledges the key contributions of the following individuals:

*Dr. Eduard Gofman*, Head, Central Medical Service, Railroad Transportation Ukraine; and *Dr. Petr Schedriy*, Director, *TransMedStrakh-Ukraine* Insurance Company, the leaders of the experiment. Over eight days of intensive professional interaction with the author, they introduced him to the railroad health care delivery system with its historical traditions, professional and civic values, and long-established practices and experiences; supplied him with comprehensive legal and statistical information, gave in-depth and sincere answers to his questions, showed him around relevant sites and organizations; but above all could convey confidence that the experiment is bound to succeed, relying on such vast resources of human energy, professional commitment, competence, and perseverance;

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## KEY ACRONYMS/GLOSSARY OF TERMS

- RHIE** *Railroad Health Insurance Experiment* - the object of review and evaluation in the current study. The experiment was endorsed by the Cabinet of Ministers of Ukraine on December 18, 1995. Progress will be evaluated by the end of 1996. Extension is considered but will depend on the interim outcomes. The agenda, mechanisms, and evaluation criteria have been outlined in at best a sketchy way. RHIE in its current configuration may be too focused on the introduction and enforcement of earmarked payroll tax.
- RTU** *Railroad Transportation [of] Ukraine* - A government-owned stockholding company, operating as an Administration within the Transportation Ministry of Ukraine. A successor to the Ukrainian branch of the USSR Ministry of Railroad Transportation. Geographically RTU is comprised of six railroad administrations, named *Railroads* throughout this report. Each railroad operates as a separate economic entity and employer, keeping account of its assets, liabilities, and payroll.
- SBF** *Social Benefit Fund* - Part of business profits, net of (1) taxes, interest, and other accruals on profits; (2) investments; (3) cash bonuses. In the context of this report SBF is considered as a pool of money to which health insurance contributions may be charged so as to minimize economic distortions expected from the introduction of railroad health insurance.
- CMS/RTU** *Central Medical Service [of] the Railroad Transportation [of] Ukraine* - an administrative body, headed by a Deputy Director General of the RTU. The CMS directs allocation of resources to and delivery of services by a network of providers, operated by the railroad industry. The CMS to the railroad providers is what the Ministry of Health is to the open community health care network. The railroad health care system is a long-established institution, created 125 years ago throughout the former Russian empire in recognition of a special status of railroad employment as a priority area of civil service. The funding comes from general revenue of the budget. It is disbursed by the Treasury to the RTU, and is allocated by the CMS further down to providers. On-budget allocations used to be supplemented from the railroad social benefit funds. At present, the CMS network suffers as much from underfunding as any other sector, dependent on fiscal resources.
- TMSUC** *TransMedStrakh - Ukraine [Insurance] Company*, a L'viv headquartered stockholding company with limited liability, incorporated in 1992 by about 1,000 individuals and non-government entities. Writes transport-associated risks, including property, cargo, and passengers' life insurance. In 1993 diversified into voluntary health insurance. The plan enrolls about 1,000 persons. Launched the RHIE initiative, secured support of the government, and



continues to drive the experiment in close alliance with CMS/RTU. Seeks an active role of influencing the national legislative process in the areas of commercial insurance and health policy reform.

*MOH Ministry of Health of Ukraine.* The main health purchasing and administration authority in the still Soviet-type integrated health care system of Ukraine. Will have to position itself relative to health insurance and other experiments and reforms, that objectively lead to the erosion of its power over providers and consumers of medical services.

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## INTRODUCTION

The purpose of this report is to review key legal and economic features of the experimental health insurance plan for the railroad workers, endorsed by the Ukrainian government in December 1995. Specifically, the report assesses conceptual and legal consistency of the experiment's framework, projects its impact on the national health care system, appraises its sustainability and underlying financial mechanisms, fills some gaps and recommends improvements in the initially proposed design and operational layout. Finally, the report proposes extensions that would help increase the experiment's value as a pilot demonstration in the context of future national health care reforms.

The author hopes, that findings and recommendations presented in this report would contribute to taking the experiment beyond its latent stage. Essential parts of this material are intended for submission to the government of Ukraine, who sponsors and supervises the experiment, and currently may be in need of an independent professional judgment on the viability of the experiment's ways and means. The key message conveyed by this report to a government-appointed oversight body, is that the goals and mechanisms of the experiment are comprehensible and manageable. The experiment is comprised of structurally distinct components, each one driven by its internal logic and mechanisms, yet all of them to be aligned by common goals and constraints. By unveiling the experiment's inner workings, the report would make it easier for the supervisors to verify its priority goals and agenda items, assess the scope of effort and amount of time, associated with each activity. We hope, that such assessments and planning will be done in September, after this Report is presented and discussed at a meeting, sponsored by the Cabinet of Ministers. It will be of crucial importance to the government to enable continuous progress evaluation. Following a recommendation from this report, critical performance measures will be developed and presented to the government as a possible instrument of managing the experiment and deciding on its future.

While making the experiment more transparent for a designated supervisory task force, the report, perhaps, would make it look more complex to its own architects and proponents. By revealing important cause-effect links between the railroad insurance, the national health care system, and financial sustainability of the economy, the report warns against a simplistic approach to this seemingly local initiative. In a generally uneventful existence of Ukraine's health care sector, the experiment becomes an important probe, whose signals may promote or discredit prospectively important vehicles of future national health care reforms. Its positive impact on the health policy-making process in Ukraine will be the matter of prudent choice from multiple menus of options, available in the modern world to designers of health care financing and delivery systems. It is important, therefore, to: (1) Tie the experiment to a truly systemic notion of the health care reform, whereby financing and delivery issues, cost-containment and quality/accessibility aspects, the necessity of administrative change and the opportunity of self-regulatory adjustment will be given a balanced consideration; (2) Identify the whole palette of options on each of the agenda items; (3) Seek adequate choice with due respect of equity/efficiency trade-off, minimization of negative allocative impact on the rest of the economy, and other

distortionary effects, resulting from additional taxes, new financial incentives, etc.; (4) Maintain balance between crossing-the-desert tactic of reforms on the one hand, and keeping the intensity of change on a reasonably moderate level, on the other. This is important, since social costs are involved.

Regardless of the fact that field evaluation work, desk analysis, and the report itself were commissioned by USAID in response to the request from the Ukrainian counterparts, the style of the report would not necessarily commend itself to the architects of the experiment. Impartial vivisection was preferred to half-truth or inconclusive flattery. As a result, certain inconsistencies and imbalances were revealed in the design of the experiment, and recommendations were made, implying that the project should be put on a more rigorous track. In particular, the *TransMedStrakh-Ukraine* Insurance Company, the driving force of the experiment, will probably have to assume additional risks and responsibilities, and settle for less in terms of financial and political returns for itself. Uncomfortable as it may feel, more demanding approach proposed in this report, if implemented, would allow the architects of the experiment to come out stronger, establish and reinforce their leadership in the health care sector innovation of Ukraine. Knowing *ZdravReform*'s counterparts in this project, the author is sure that they are quite up to the challenge of thinking broadly and working hard to keep up with the international standards of quality and competitiveness.

The author will appreciate critical review of this Report by the Ukrainian colleagues. He would also like to express hope that current and subsequent episodes of their technical collaboration with the *ZdravReform* Program will work to the good of the health care reforms in Ukraine.

## CHAPTER 1. ANALYSIS OF CONCEPTS AND LEGAL FRAMEWORK

The Railroad Health Insurance Experiment (RHIE) was endorsed by Ukraine's Cabinet of Ministers in its Executive Order No. 773-R of December 18, 1995. In compliance with the Order, a package of bylaws was developed and in part adopted in December 1995 - May 1996, to define the RHIE legal frame, rules and procedures. Specifically, the following regulations were set forth or proposed in draft:

1. Frame Bylaw on the Experimental Rules of Insurance of Ukraine Railroad Workers;
2. Rules of Health Insurance of the Railroad Workers, effective December 28, 1995;
3. General Health Insurance Contract;
4. General Provider Contract to Deliver Medical Care and Services to Health-Insured Railroad Workers;
5. Rules No. 03/1 of Voluntary Health Insurance;
6. Draft Program of Financial Stabilization and Development of Ukraine's Railroad Industry Health Care System in the Perspective of 1996-2000.
7. Draft Program of Organizational Build-up of the Health Care System of the *Railroad Transportation Ukraine*.

External legal frame for RHIE is and would be set by the following laws:

- Ukraine Insurance Act, effective since 1996
- Ukraine Social Health Insurance Act, currently in Draft.

In subsequent analysis document #1 will be quoted most extensively, largely without reference to its title or titled in abbreviated form. Other listed documents will appear under their full titles.

### **1.1 The Experiment and the *Social Medical Insurance Act***

Provision 1.2.1 implies that RHIE is endorsed by the government with a far-reaching goal of creating a working model of health insurance that subsequently might be used as the national prototype of MHI and with proper adjustments extended to Ukraine's entire population. In clear controversy with such approach the Ukraine Social Medical Insurance Act -- still in draft -- overrides *de facto* the basic ideas of the RHIE by ruling as follows: (1) in Article 1: social medical insurance shall be aimed at "ensuring *equal* right of access to health care for all citizens"; (2) in Article 12 (6): "the Territorial Social Medical Insurance Funds and the National Social Medical Insurance Fund will operate as essential economic guarantors" of the MHI system; and in Article 4 (4): the Social Medical Insurance Funds shall be insurers under social medical insurance; (3) in articles 20 and 22: MHI financing will be based on co-insurance with the basic rate for most subscribers of 50 percent of the total premium. The implications of these provisions for RHIE are threefold:

a) The split of the single risk pool is in controversy with the outlined system of national MHI. RHIE draws on the concept of workplace insurance, thus taking about one million persons out of the uniformly mandated coverage. In terms of care delivery RHIE advocates preferred access of the railroad workers to industry-operated health care facilities. This may be interpreted as privileged access to services and limited consumer choice alike; in both cases the right of equal access mandated by draft *Social Medical Insurance Act* (SMIA) is challenged.

b) In obvious opposition to the concept of RHIE, SMIA provides that MHI will be arranged by geographic principle rather than by industrial or occupational affiliation of the insured. Although the draft SMIA leaves ample room for interpretation of what exactly the functions of the Territorial Social MHI Funds may be on the operational level, it collides with the provision 2 (4) of the *Frame Bylaw on the Experimental Rules of Insurance of Ukraine Railroad Workers*, that assigns the insurer's role to the *TransMedStrakh -Ukraine Insurance Company* (TSMUC).

c) The RHIE is based on non-contributory earmarked taxes, i.e. ones to be levied exclusively on employers.<sup>1</sup> The draft SMIA mandates 50 percent co-insurance for almost all covered populations.

Listed discrepancies do not necessarily imply that the RHIE is ruled out by the SMIA. However, if the SMIA is adopted in its current version significant legal reconciliatory adjustment will have to be made on the RHIE side. Alternatively, the status of the RHIE might be reconsidered in a non-reconciliatory way: the experiment could be authorized as an exclusion from the national MHI model rather than its prototype. An optimal choice should be based on careful legal and economic appraisal of whether RHIE eventually facilitates or impedes the national health insurance reform.

## 1.2 Essential Features and Factors of Viability

*A. Basic Model.* In general the RHIE resembles the German concept of workplace-based health insurance, whereby employees would be offered, as an option, coverage through a group plan chosen by the employer. Unlike in Germany, however, railroad workers of Ukraine would not have a choice of opting out of the company-based plan to prefer a plan by place of residence or occupation. Also, contrary to the German practice, the RHIE relies on a single-payor approach. TMSUC claims to become such purchasing authority. Discussions with Dr. Petr Schedriy, Director of TMSUC, suggest that restricted consumer choice will not affect the railroad workers, since enrollment and self-referral patterns consistently show almost 100 percent loyalty of the railroad personnel to the industry-operated health care facilities.

*B. Large Risk Pool.* RHIE is a potentially viable undertaking, since it relies on a prospectively large risk pool of 775,000 railroad employees alone.<sup>2</sup> RHIE will apply a reasonably incremental approach to the enrollment issue. Initially, only traffic operation personnel will be targeted for coverage. Its number is approximately half a million and will require a more precise calculation by the architects of the experiment. Longer term, dependent family members and railroad retirees will be phased in. Altogether this would bring total enrollment up to 3.5 million.

*C. Viable Service Delivery System.* The overall capacity of the railroad health system is more than sufficient to meet the demand for services as may be projected on the first stage of RHIE. In 1995 total enrollment in railroad facilities was reported at 1,994,704 persons<sup>3</sup>, thus exceeding industry-wide employment by a factor of 2.5. The clinical profile of the facilities has been set over decades to match the health need profile of the industry, at least as far as

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<sup>1</sup>This was reiterated in: E. Gofman. CMS/RTU. The Medical Insurance of the Railroad Workers: a Way to Rescue the Railroad Health System. *Pul's Magistrali*. Special Issue, Jan.-Feb. 1996, No. 1-2 (13-14), p.1 [in Russian].

<sup>2</sup>Збірник основних показників діяльності лікувально – профілактичних закладів медичної служби системи “Укралізниці” за 1995 рік. Київ, 1996, стр. 1.

<sup>3</sup>Ibidem.

curative care is concerned. The quality of services is generally known as exceeding the national average.

*D. Comprehensive Risk Coverage.* Longer-term RHIE will seek to provide coverage for both general medical and disability risks, other than cash compensation. At the initial stage of the experiment, however, only general medical risks are likely to be taken into consideration.

*E. Pro-efficiency Structural Policy Goals.* The RHIE is propelled to a large extent by the desire of its architects to preserve the railroad health facility network. For that reason -- along with the introduction of health insurance -- they seek to rationalize facilities and the network as a whole. The following important lines of efficiency-driven structural adjustment are recognized in the concept of the RHIE<sup>4</sup>: (1) Shifting services outpatient, in particular by increasing focus on preventive care (item 3.2.3 of the *Program*); (2) Reducing length of stay in hospitals (3.2.4); (3) Developing outreach care and day hospital admissions: 4 to 6 hours of daily stay in the hospital for day surgery or intensive medications that require physician monitoring and supervision (3.2.4); (4) Creating new types of post-acute care, i.e. specialized rehabilitative services in nursing homes and sanatoria (3.2.5); (5) Budgeting of facilities and services, based on statistical evidence, economic appraisals, and feasibility studies (4.2.1); (6) Capitated methods of financing as an instrument of fund allocation by catchment area (4.2.2); (7) New construction should not be commissioned unless there is a cost-recovery plan for projected health care facility (2.12).

*F. Provider Network Layout.* The Railroad Section Territorial Medical Amalgamations (RSTMA) proposed in *Draft Program of Organizational Build-up of the Health Care System of the Railroad Transportation Ukraine* may be considered as a framework for hospital-based health maintenance organizations. An RSTMA would integrate the Railroad Section Hospital, junction and local hospitals, as well as feldsher-midwife posts and workplace-based first-aid posts. Such configuration would make RSTMA clinically sufficient for the provision of care to comprehensively enrolled railroad workers. The catchment area of RSTMAs is an oblast, since the division of the railroad network by sections usually matches the division of the Ukraine's territory by oblasts. To turn RSTMAs into full-fledged integrated delivery systems, the following lines of innovation should be designed and introduced: (1) Fund-holding status of the railroad section hospital; (2) Contractual framework to regulate relationships between the fundholder and other participating providers; (3) Capitation rate of financing; (4) Fee schedules for outpatient services and simple casemix rate schedules for inpatient care; (5) Utilization standards within RSTMA; (6) Gradual transition to autonomy for providers and non-itemized budgeting.

*G. Legally Required Methodological Inputs.* A large body of data collection, economic evaluation, and legal design work is commissioned by the RHIE regulations (e.g., provisions 1.2.4 - 1.2.6). Specifically, the data will be gathered to project population mix eligible for

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<sup>4</sup> See *Program of Financial Stabilization and Development of Ukraine's Railroad Industry Health Care System in a Perspective of 1996-2000*. As of May 1996 existed in Draft. Subject to approval by Mr. L.L. Zheleznyak, First Deputy Transportation Minister of Ukraine, and Director General of the *Railroad Transportation Ukraine*.

enrollment in the railroad health insurance. Disease incidence, utilization patterns and frequency numbers for high-volume services will be estimated. Services will be costed. Demographic characteristics, combined with the utilization and cost data, will generate age-adjusted capitation rates of financing. Insurance premium rates will be set, based on reimbursement rates. The RHIE requires that legal regulations and contractual framework should be developed to facilitate introduction of the Railroad MHI system, define the status of and internal operations guidelines for participating institutions, set forth reserve requirements, and other terms that would make the RHIE financially sustainable. If the RHIE is found to be successful during its trial period -- till the end of 1996 -- its term will be extended for another four years. During that longer time period an ongoing risk-adjustment work is envisaged to ensure steady improvements in cost prediction.

### **1.3 Gaps and Inconsistencies in the Regulatory Framework. Recommendations for Improvement**

1. *Distorted Goal.* The railroad health insurance is defined as “an instrument of social protection of the railroad industry employees in the event of complete or partial loss of health by means of providing health care and medical services” as set forth in the *Rules of Insurance* and covered by the *Railroad Program of Health Insurance* (provision 1.1). The definition suggests that preventive component of care under the industry coverage may be neglected.<sup>5</sup> To confirm or dissipate this concern it will be important to carefully evaluate the ability of providers to maintain emphasis on primary care. At a first glance the network of railroad health facilities is dominated by hospitals to the extent that makes outpatient physician services look overshadowed.

2. *Deformed Principles.* Perhaps the main flaw in the RHIE legal framework is that it defies the probabilistic nature of insurance, whereby the risk is sought to be evenly pooled between the insurer and the subscriber, thus equitably hedging both parties against the possibility of unpredictably high spending. In the proposed regulations financial liabilities of the parties are asymmetric in the following way: (1) Risk insurer’s performance under the RHIE is not regulated against cost-inefficient behavior. (2) The insurer can shift revenue shortfalls, resulting from its inefficiency on the subscriber. Needless to say, this threatens both equity and financial sustainability of the RHIE scheme. *On the one hand*, article 3 consistently advocates fee-for-service, full indemnity approach to provider reimbursement. There are two provisions on this account: (1) Provision 3.4 emphasizes that no cap on total [annual?] reimbursement may be applied to any of the subscribers; (2) Claim reimbursement according to provisions 3.3, 8.3 and 13.2 will be based on costs geared to normative clinical protocols encoded in medical economic standards (MESs). NIS-wide experience invariably shows that the MESs promote over-utilization, thus commending a cost-explosive rather than cost-containment nature to provider payment mechanisms. *On the other hand*, provision 4.5 rules that in the event that claim reimbursement in a reported period exceeds 75 percent of

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<sup>5</sup>Provision 3.1 is more balanced, since it extends reimbursement claims to disease prevention activities. However, as will be shown subsequently, no economic incentives are offered under the RHIE to encourage providers of services to enhance prevention.



premium revenue in the same period, the Insurer is entitled to replenishing its cash flow by “demanding that group subscribers urgently expedite appropriate insurance payments”. The true meaning of this provision may depend on the definition of “appropriateness”. In any event, it is important to exclude loopholes for the insurer to shift consequences of its reckless and/or inefficient performance onto employers.<sup>6</sup> Provision 10.5 gives additional evidence that such concern has grounds. It rules as follows: “Should insurance premium revenue turn to be *insufficient* for the insurer to comply with its obligations, the subscriber [employer] and the insurer shall make a decision to balance reimbursement and reserve pool by: (1) increasing the premium rate; (2) limiting the amount of claim reimbursement per case.” Importantly, it is not specified what the criteria of insufficiency are and whether respective adjustments may be made at the point of contract renewal or at least with established periodicity. Apparently, under the quoted piece of regulation, corrective actions to repair the revenue shortfalls may be taken on the insurer’s initiative alone. If this turns out to be the case, the system will go too arbitrary to qualify for a viable insurance plan.

*3. Lack of Financial Stability: Internal Factors.* The above highlighted controversy between the indemnity approach in provision 3.4 and the right of insurer to abandon it at will according to provision 10.5 creates a gordian knot of confusion that may be broken by: (1) building cost reduction mechanisms of reimbursing costs to providers of services; (2) binding the insurer with obligation to manage its financial risks at no down-the-road expense to subscribers. The first objective may be achieved by instituting managed care methods of payment to providers. The second objective requires internal and external fences, such as reserves for outlier and other contingency reimbursement, plus stop-loss reinsurance. The regulations under review do not even contain a hint of modern managed care instruments. Cost containment, as was previously observed, is geared to MESs. This is counter-productive, since MESs are opposite to what they appear to be, legitimizing over-utilization of services. External reinsurance is not promoted at all. As to internal contingency reserves, their formation is regulated in a problematic way and provides another case for criticism and subsequent technical adjustment.

*4. Over-Accumulation in Reserves.* Provision 4.5 sets forth that 30 percentage points of the total 95 percent of premium revenue intended for claim reimbursement (according to provision 4.3) will accrue to financial reserve to provide stop-loss coverage to providers on outlier cases and other contingencies. Such reserve ratio seems to be exaggerated. However, it will take to analyze a variety of factors to make final judgment on what is adequate. Specifically, referral and cost variability patterns in the health care system, inflation expectations, and the opportunity cost factor as measured by return on investments should be evaluated. The off-hand assumption is such that investment opportunities in Ukraine’s

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<sup>6</sup>Dr. Schedriy believes, that the TMSUC will be able to keep retiring from and coming back to the “game” without forfeiting its credibility among its customers. Here is how he sees the attitudinal set-up. As long as the insurer has money, it pays against claims. Once it runs out of funds, the reimbursement stops. Still providers will not feel they are at a loss, since health insurance came to supplement the on-budget funding and remains a discretionary source for providers anyway: if the money is there everybody is happy; if it is not, providers still keep going on budgetary allocations as before. Employers would not expect much from premiums equivalent to 4 percent of payroll, so they will be tolerant to interim financial disruptions.

emerging financial market would shift the optimal choice towards retaining as much as possible in internal reserves, investing those monies, and covering excessive risks out of investment revenue, as opposed to ceding excessive risks to reinsurance.<sup>7</sup> However, to test such assumption the information on reinsurance premiums should be built in the model and premium-to-recoveries rates estimated for alternative reinsurance plans.

5. *Lack of Financial Stability: External Factors.* As long as insurance premiums are not built in the operating costs, full coverage will not be adequately insulated from volatility of the Ukrainian economy. Hence, the health insurance under RHIE may not qualify for a social insurance program. At best, it may be considered as a fringe benefit, provided at employer's discretion. It is important to examine current financial performance of and outlook for the railroads to see which component parts of sales revenue should be preferred as the tax base for health insurance premiums.

6. *Lack of Financial Transparency.* A potential problem with the TMSUC is that the company is diversified into other lines of insurance business, e.g. rights voluntary health and property risks. Although provision 1.4 sets forth that *reporting* pertaining to mandatory health insurance shall be separated from other lines of operation, there is no explicit regulation that collection and disbursement of funds intended for MHI must be separated from other types of revenue and expenditure. Restrictions on investment practices are not set out either. Altogether, this may lead to hidden cross-subsidization within the company and *creative* investments, not necessarily beneficial for health insurance.

7. *Risk Selection?* In clear contradiction with the basic principles of social insurance, provision 62.2 sets forth that "the insured shall accurately inform his/her physician, medical facility, and *the Insurer* about his/her health status and risks that may possibly affect it". Experience rating -- visible or hidden -- seems to be an intention in the context of such requirement. This raises a more general concern that community rating, as a matter of fact, is not explicitly set out as the key approach anywhere in the RHIE regulations. While uniform premium rate and group coverage make the workers relatively immune of risk selection, the same cannot be said about family members, since the mechanisms of their prospective coverage remain undefined. Therefore, a clear-cut statement of non-discriminatory rating principles should be required from the architects of the experiment.

8. *Uncertainty about Cost Standardization.* Nothing is provided in the regulations as to how reimbursement rates will be set by factor cost; that is, by main component part of the price.

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<sup>7</sup> This is based on the current 70 percent annualized return rate on Ukraine's treasury bonds with 3 to 6 months maturity, plus the fact that futures Krb/US\$ exchange rate is tied to the Rb/US\$ exchange rate *corridor* in Russia -- the sliding over time variation range of Rb/US\$ conversion factor, regulated by the Central Bank of Russia. The Ukraine-Russia *currency stabilization snake* has good chances to survive, at least in the near term, after the currency corridor in Russia was recently extended with slight adjustment till the end of 1996. Since the main economic factor of inflation expectation is thus settled (plus the outcomes of presidential elections in Russia are favorable for business conditions), public borrowing in Ukraine will continue, perpetuating almost windfall investment revenues for large institutional investors.

Two questions arise with this respect: (1) Will excess of revenue over costs be allowed to providers of services? (2) If not, is there any margin in the rate to accommodate the differential between production costs and full economic costs? For example, provision 14.2 sets forth financial sanctions against provider who is at fault of causing damage to the patient's health. This raises the issue of malpractice insurance. What source of funding would the facility have available to pay for it? On a broader score, will there be any cost disallowance in calculating reimbursement rates? To what extent will the rate schedule be geared to facility-specific versus network-wide average costs? There are well known options to consider while answering these questions. Each one, however, should be evaluated from a twofold perspective: (1) Financial implications for specific provider: may vary in a range from wind- to shortfall of revenue, depending on how its cost structure fits in the established rules of cost standardization; (2) Structural policy implications: by meriting some costs and disregarding others the insurer sets certain incentives and puts different facilities at a comparative (dis)advantage. Structural implications should be controlled for their compliance with the desirable changes in the layout of the delivery system by type of care, facility, and input resource.

*9. Inconsistencies Relating to Inclusion of Dependent Family Members.* The RHIE designers realize that health insurance should be gradually extended to dependent family members of the railroad workers. However, provisions 4.6 and 4.7, pertinent to the subject, leave out financial mechanisms of the inclusion. Dual option, i.e. either employers or employees can pay premiums to cover family members, leaves too much to collective bargaining. A more specific and standard arrangement is needed to enable family coverage as an inherent part of the fringe benefit package. This may be a flexible approach, scaling benefits for dependents against co-insurance rate, thus leaving the amount of co-insurance payment to the employee's own choice. To build a viable co-insurance rate/benefit scale, we will have to analyze, first, the cost structure of the railroad health care system by type of care and, second, to project financial capabilities of the railroads in picking additional labor surcharge costs of paying the employer's part of family insurance. In terms of its distributional impact co-insurance increases progressivity, i.e. makes higher paid workers better-off. To attenuate such effect the co-insurance rate schedule may be adjusted to allow for the wage/salary size of employees. This requires another line of analysis and simulation, relating to wage differentiation in the railroad industry.

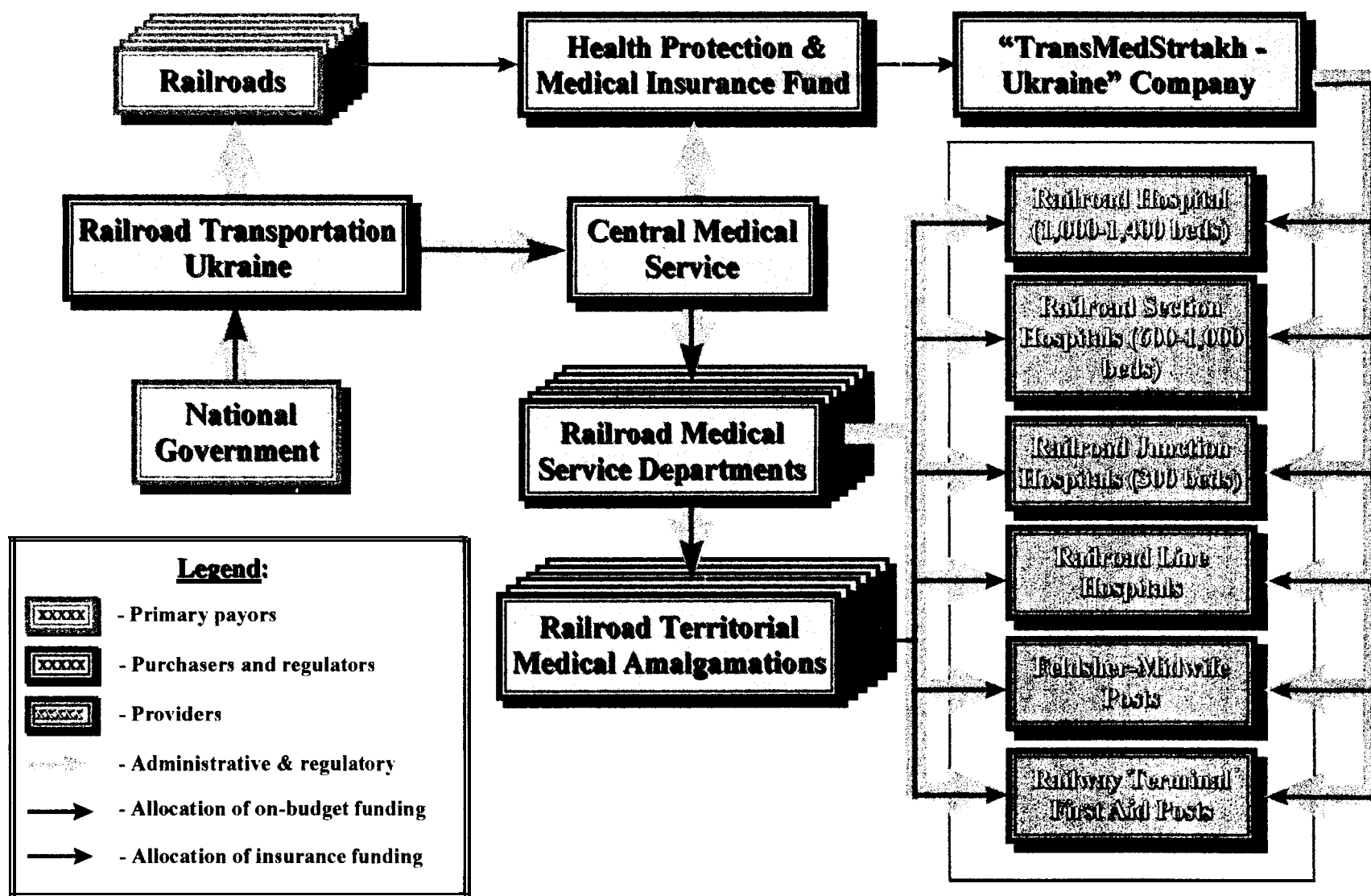
*10. Absence of Continuity.* Provision 5.4 rules that insurance policy shall be terminated outright upon the worker's displacement or even change of position. No arrangement is set forth as to how to ensure the continuity of health coverage. To enable smooth transition of the worker and his family from the railroad health insurance to an alternative, e.g. territory-based system, a variety of situations will have to be regulated. In particular, exit from the industry to unemployment, long-term disability and retirement requires special attention. Respective provisions would be developed along the way, as alternative health insurance systems are maturing. At this point, however, one general provision will be appropriate to reserve place for future more articulate regulations. For example: "Upon emergence of alternative health insurance systems and plans, the Railroad Health Protection and Medical Insurance Fund and the TMSUC will work with new health insurance institutions to ensure

uninterrupted coverage for terminated railroad workers”. In consideration of current situation, there should be a provision, ruling that the health insurance policy may not be discontinued until the end of a period covered by effectively paid premiums.

11. *Absence of Portability.* Portability (in the Canadian sense of the word) is an indispensable feature of a socially equitable health insurance system. It maintains validity of the policy for out-of-the-territory and out-of-the-network referrals. Provision 6.1 rules that the insured are entitled to medical services provided by RTU health care facilities. This greatly restricts consumer choice in the RHIE. Train crews traveling outside Ukraine may be particularly affected. Given, that NIS health care systems operate on a similar cost scale, it would be appropriate to secure NIS-wide coverage for emergency referrals at the amount of 100 percent customary costs. 80 percent coverage of ordinary and customary costs could be allowed for out-of-the-network non-emergency self-referrals within Ukraine. There should be a mechanism whereby participating primary care physicians would be able to refer their patients outside the network, if medically appropriate and endorsed by the TMSUC. Analysis of cross-boundary flows and cross-sectional comparisons of costs for at least benchmark services is essential to test and optimize financial implications of Ukraine- and NIS-wide portability. An advisable approach would be to build a model that would control for the total share of outside spending, while sliding reimbursement rates inversely to the range of out-of-the-network services and the degree of consumer freedom in accessing them. Proposed emphasis on portability indicates an alternative to provision 13.3, which sets the policy of admitting more and more facilities into the RHIE contractual framework if so dictated by referral patterns. It may be cumbersome to pave the way to wherever the patient decides to go with full-fledged provider contracts. Instead, occasional referrals and self-referrals to peripheral facilities could be reimbursed on an *ad hoc* basis, using some general portability criteria and arrangements.

12. *Exceedingly Complex and Politically Vulnerable Organizational Layout.* There are so many parties in the proposed railroad health insurance system (see *Chart I*), as set forth in Article 2, that internal breakdowns seem to be imminent. High degree of political determination, strong sense of commitment to the experiment on the part of its architects, their resolute style suggest that all the participants would buy in and accept the roles assigned to them by the RHIE leaders. However, initially achieved strategic alignment may turn out to be volatile, since various non-concurrent group interests are built in the experiment. For example: (1) Five out of six Railroads within the *Railroad Transport Ukraine* would balk at having a peripherally located insurance company, such as L’viv-Headquartered TMSUC, dominate the entire insurance market. (2) The Medical Service Departments of the Railroad Administrations may or may not show willingness to cooperate with the Insurer who came to challenge their so far undivided authority over health facilities. (3) Providers of care would rebel against too many middlemen in the system, such as the newly founded Health Protection and Medical Insurance Fund, the Medical Service Departments of the Railroad Administrations, TMSUC itself, Railroad Section Territorial Medical Amalgamations. (4) The tentatively achieved consensus on RHIE is so critically dependent on personal micro-coalitions that any reshuffle affecting involved executives may have an irreparable impact on the entire experiment.

# Chart 1. Institutional Framework of the Railroad Health Insurance Experiment



13. *A Need to Adjust Legal Status of the Health Protection and Medical Insurance Fund (HPMIF)*. Either the HPMIF or the TMSUC is a redundant intermediary in the organizational framework of the RHIE (see Chart 1), as derives from the definition of the Fund's functional roles in Article 12. However, none of the two entities may be jettisoned: the TMSUC is the proponent of the RHIE and its main entrepreneurial driving force while the HPMIF is conceived to shelter insurance premiums and reserves from taxation. The tax optimization role of the HPMIF consists of two major components: (1) Being a charity by its legal status it gives the railroads the opportunity to exempt from taxes part of profits paid in health insurance premiums, showing them as charitable contribution. This tax incentive is an important arrangement that wins support of employers to RHIE. Conversely, the TMSUC is a for-profit organization and cannot be used by employers as a vehicle for tax exemption. (2) The TMSUC expects that railroad administrations will agree to pay health insurance premiums by annual installments. Once annual amount in premiums gets to the insurance company, the excess of what is due from the subscriber in the current quarter turns for the insurer into taxable revenue -- so called *unearned reserves*. The TMSUC is not willing to pay taxes on premiums transferred well in advance. The company seeks to use the HPMIF as a safe-deposit where unearned reserves will be curtailed from taxes. Since the roster of the TMSUC Supervisory Board -- as regulated by provision 11.3 -- features top administrators of both RTU and the industry health facility network -- the latter actively involved in RHIE from its inception -- it may be presumed that the funds, temporarily stored at the HPMIF, will be invested productively and in the mutual interest of the HPMIF and the TMSUC alike. Leaving out the hanky-panky of the RHIE internal dealings and doubtful motivations, the inevitability of the HPMIF gives a good opportunity to implement an unprecedented by NIS standards scheme, whereby industry-wide health insurance plan will be managed by an employer-operated social insurance trust. The trust is a mode of financial management widely spread in the United States, yet nonexistent in the former Soviet Union, except in largely discredited voluntary pension insurance in Russia. If set up in a thoughtful way in the context of RHIE, it could become a prototype for both pay-as-you-go and fully funded social insurance plans both in Ukraine and NIS-wide.

14. *Inconsistent approach to operations issues*. Although efficiency-driven structural change is considered a priority (see *item E* in Section 1.2), archaic thinking on several important issues may render such change unachievable. Specifically: (1) No consideration is given to autonomy for providers of care, economic incentives, and, therefore, self-regulatory potential for efficiency. The Program of Financial Stabilization (for full title see source in footnote 4) treating the subject of efficient resource use, draws exclusively on external control. E.g.: "A set of energy savings steps shall be based on strict control and unit norms of energy consumption geared to clinical volume" (item 2.9). "A set of measures shall be implemented to ensure continuous inventory control, based on which replacement of furniture and fixtures, medical equipment, and means of transportation will be carried out" (2.10). "To prevent redundant spending on capital repair, health care facilities shall maintain a comprehensive program of inventory control and valuation of fixed assets and develop schedules of maintenance and capital repair works, such that fund allocations could be planned on a special-purpose basis and in advance" (2.11). (2) Line-item budgeting is persistently advocated as a tool of financial discipline to keep providers accountable for the payor's

money (4.2.1); (3) Further specialization of hospital bed capacity is proposed (3.2.4). The architects of the experiment believe that by maximizing weight of tertiary care in the hospital sector they would be able to increase hospital casemix severity. This supply-induced approach is likely to be misleading. Segmentation of bed capacity by narrow specialty would make it more difficult for the hospitals to keep occupancy on an acceptably high level: it is more difficult to optimize patient flow across narrowly fragmented departments as opposed to a hospital organized just by medical and surgical departments.

## CHAPTER 2. ECONOMIC IMPACT AND VIABILITY ANALYSIS

### 2.1 Impact on the National Health Insurance: a General View of the Problem

It is important to ensure that RHIE does not clash with the national system of health insurance once the latter takes effect in the next year or two. Part of the analysis in the previous chapter was focused on the issue of legal concurrence between RHIE and draft Social Medical Insurance Act. Below the same issue is addressed from the economic viewpoint.

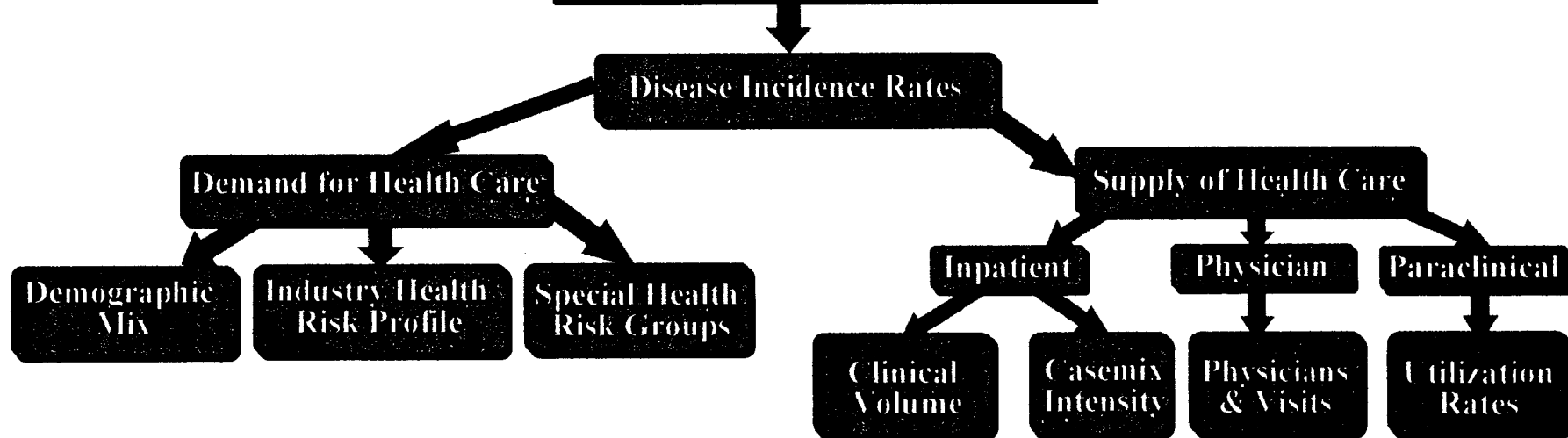
As any social insurance plan, RHIE deals with certain risk pool and relies on certain tax base to levy premiums. By separating the railroad-affiliated enrollees into a special plan we shift average risks in ways beneficial or adverse to the remaining pool. *In terms of risk selection* the impact will be negative if per capita demand for health care under industry-based coverage is below the national average. Such possibility challenges the appropriateness of the experiment as setting a bad precedent. What if other better-off industries -- in this context, those employing relatively healthy labor force -- decide to follow the model and take care of themselves, thus leaving the least *healthy* industries and non-working populations out? Resource base for comprehensive coverage is likely to be affected, if not undermined.

To appraise more accurately the impact of splitting the national risk pool into industry-based plans, we will also have to look at *the industries' relative ability to pay*, i.e. cross-industry patterns of variation in per capita payroll and profits (net revenues). If per capita health care needs on an industry-by-industry basis are commensurate to payments that may be raised through payroll tax and/or contributions from profits, then, in theory, no cross-subsidization is required and each industry should be allowed on its own. However, linear proportionality between the need for health services and the ability of specific industries to sustain employer-based health insurance is unlikely to be the case. Variation in risks would have to be adjusted for by means of large-scale transfers. They may be easier to arrange on the territorial and/or national levels.

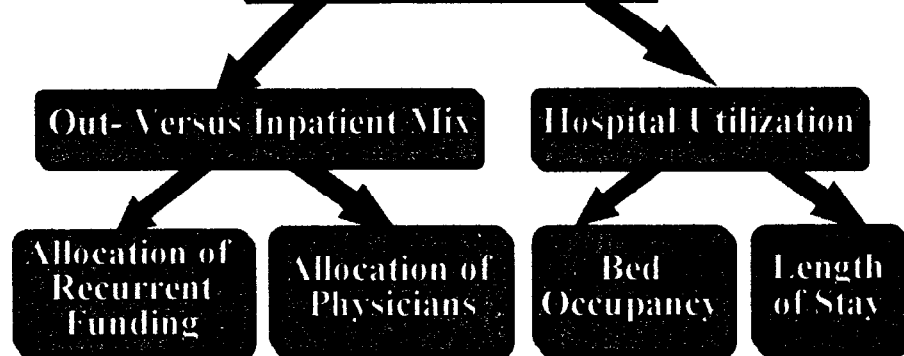
To make analysis more accurate, aggregate need should be broken down by two factors: *objective need*, as may be approximated by the level of health risks, and *supply-induced demand*, measured by the capacity and clinical profile of medical facilities, participating in a health insurance plan. Similar to other NIS countries, many well-established Ukrainian industries, including transportation, operate their own network of health care services. RHIE

## Chart 2. A Framework for Economic Evaluation of the Railroad Health Insurance Experiment

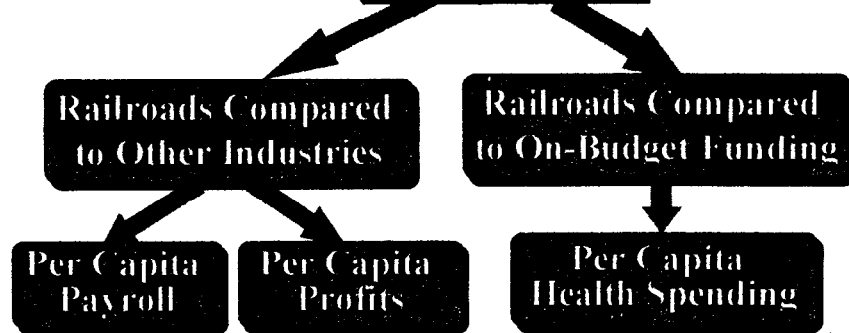
### I. Demand for Health Resources



### III. Efficiency in Utilization of Health Resources



### II. Financial Sustainability of Key Payors





presumes that employer contributions will be channeled to railroad health centers and hospitals. If the same approach is applied economy-wide, the national health insurance will be impeded from the delivery side. Even if identical amounts of money are raised for each insured, they will not be able to buy the same amount of medical services: industry-operated facilities will be returning more per unit of funding in terms of quality than, perhaps, community facilities under MOH. This raises another potential concern with respect to social appropriateness of the industry-based health insurance plans. Not only do they tear apart the national demographic pool but also put fences on the way to equitable access. Pooling provider capacity should be considered no less important than pooling funding.

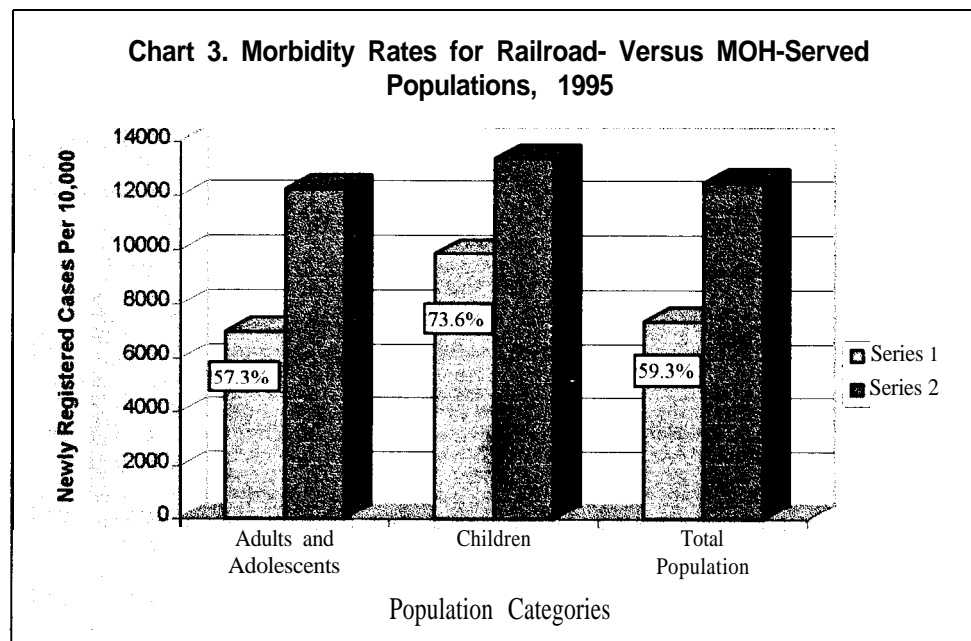
The aforementioned issues should not necessarily lead to the conclusion that RHIE must be discarded outright. *First*, cross-industry and community/employer differentiation should be measured to give a better view of the magnitude of the problem. *Second*, if big discrepancies are identified in (i) demand for health care; (ii) supply of services; (iii) ability to pay, a specific industry-based insurance plan may be configured or adjusted in such a way as to ensure positive externality for the community, be it local territory or the whole country. E.g., if initially targeted populations are relatively healthy, then the coverage should be extended to the industry's retirees, children, or all dependent family members. If premium revenue is allocated to the already better-than-average industry-affiliated facilities, thus increasing the inequality in access to care, then the gap may be closed by establishing a quota of community enrollees to be served by the railroad facilities. The funding for those patients will be coming from the local budget at the oblast per capita average level. Finally, if the railroad network shifts resource-intensive segments of the casemix to the community network -- by not having respective specialties -- then out-of-the-network reimbursement for referrals to MOH facilities must be enforced as part of the industry-based health insurance plan. Alternatively, such plan may be regulated to invest in the development of missing specialties -- independently or jointly with the community health care systems. In other words, there should be enough latitude to optimize RHIE in order to make it more equitable, even if it is not from the outset.

As shown in *Chart 2*, statistical and economic analyses are arranged into three subject areas. (1) Demand for health resources; (2) Financial sustainability of key payors; (3) Efficiency in utilization of health resources. Following sections consecutively cover listed areas. Altogether they allow to appraise the sustainability of RHIE and its impact on the rest of Ukraine's health care financing and delivery system.

## **2.2 Demand for Health Resources**

An acceptably accurate way to assess aggregate demand for health resources would be to analyze such relatively non-collinear indicators as standard mortality, new disability, and infant mortality rates. The first and the third indicators are reported for the entire national population only and therefore could not be used to estimate the health status of the railroad risk pool. In the absence of needed data, the study was focused on total and age-specific rates of registered morbidity.

Registered morbidity rate measures disease incidence as the number of diagnosed cases per 10,000 enrollees. A necessary precondition for the health problem to be diagnosed and registered as a clinical case is the patient/doctor encounter. Two circumstances lead to the encounter: (i) presence of disease or at least a complaint on health; (ii) availability of services known by the patient and/or primary care physician as adequate for dealing with the problem. Therefore, registered morbidity captures both objective and supply-related need for health resources.<sup>8</sup>



*Chart 3* (see also background data in *Tables 4* and *4a* of the Statistical Appendix) shows that morbidity rates for populations targeted by the railroad health insurance plan are significantly lower than for the most part of Ukraine's population, served by the MOH network of health care providers. This leads to the conclusion that the creation of the industry-based insurance system is tantamount to taking lower risks out of the national risk pool with imminently negative impact on any future system of the national health insurance.

<sup>8</sup> A traditional reservation relating to this indicator had to do with patient behavioral biases, such that workers would often go to see the doctor with the only reason to get a sick leave. It was reasonably argued, therefore, that morbidity rates used to be inflated. This weakness may be tolerated in the context of our analysis for three reasons: (1) The degree of inaccuracy should not vary significantly across compared risk pools, and therefore may be disregarded. (2) Moral hazard factor has become less of a problem in recent years, since work absenteeism has been abated by supply-side pressure on the labor market and resulting high unemployment. (3) Patient abusive behavior of seeking medically inappropriate appointments with the doctors largely distorts only utilization of *primary* care. Morbidity rates for diseases diagnosed by *specialists* should not be affected considerably. It is important, therefore, to compare morbidity rates by class of disease and essential medical condition, focusing on casemix bands whose diagnostics is associated with secondary care.

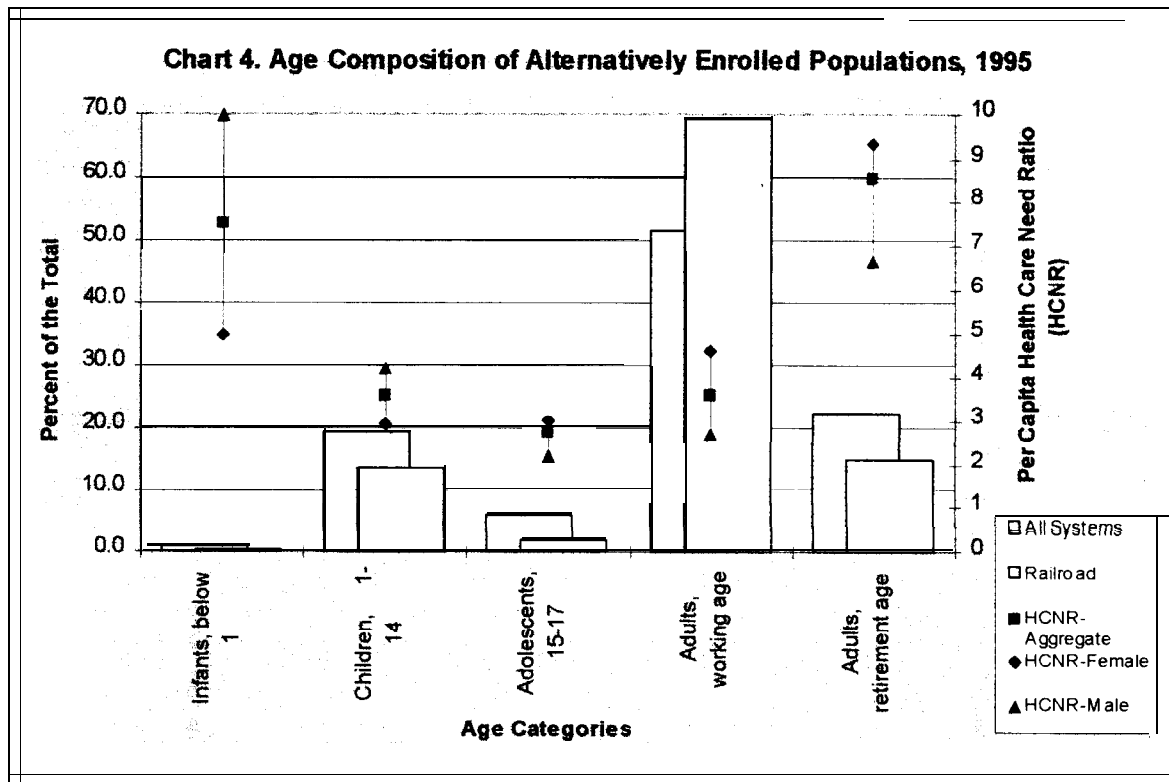
It is important, however, to analyze to what degree need versus supply factors determine such sharp contrast between disease incidence in two population cohorts. Objective need is associated with the health status and in the current study is attributed to the variation in demographic mix, industry health risk profile, and the share of specific health risk groups. Supply-induced demand, being determined by the availability of services, is linked to differences in clinical profile of providers participating in railroad versus MOH health care networks; provision of hospital beds, number of outpatient visits, and utilization of key paraclinical services.

### 2.2.1 Demographic Mix

At the author's request, the MOH provided a standard breakdown of community-enrolled populations by sex and 5-year age group. By contrast, *CMS/RTU* submitted only scarce data, featuring the number of children, adolescents, and adults, plus women employed on the railroads. In order to upbuild the data to a minimal explanatory level the author then held discussions at the Economic and Planning Department of *CMS/RTU* and at the Kiev-based Central Teaching Hospital of the South-Western Railroad. Once it became clear that enrollment data by five-year age/sex bands does not exist, the author looked for the share of aged people so as to complete at least the basic breakdown by infants - children - adolescents - working age adults - the elderly. Such data could not be obtained either. Statisticians and economists, who know the enrollment rules, explained that industry retirees retain their access to the industry-based health care network. However, most of their spouses would have to drop out at the point of breadwinner's retirement. Very tentatively, therefore, the share of the aged was assumed 1.5 times lower than for the nation-wide population. Eventually, the age composition was estimated as shown in *Chart 4* and *Table 2b* of the Statistical Appendix.

As the next step, the author matched the age/sex structure of both national and railroad enrollments with age/sex specific *health care need ratios* (HCNR), also shown on *Chart 4*. Such ratios have been published for the former Soviet Union in 1989 by the Semashko Research Institute of Public Health and Hygiene. They measure the relative amount of medical services in each, largely, 5-year age/sex bracket. The ratios are based on historic time-series of utilization data, but might have been adjusted to bring them closer to the notion of objective need.

The aggregate HCNR for the whole population of Ukraine was estimated as the age-weighted average of 20 age/sex groups (cell N33 of *Table 2b*). Detailed age/sex specific ratios were grouped by five broader age bands (cells H36:H40; J36:J40; N36:N40 of *Table 2b*) to match the RTU reporting pattern. The resulting HCNRs were applied to respective age bands in railroad enrollment. To make such extension legitimate it was assumed -- compensating for the lack of data -- that: (1) year-to-year age distributions within broader age bands are the same for the railroad enrollment and the entire population of Ukraine; (2) gender composition of each age band is identical for both



demographic pools, unless there is reported data from the railroads, proving otherwise. The availability of such data for the working-age railroad employees allowed to reveal a slightly male-biased pattern of the industry employment and, therefore, health care enrollment: women account for 41.8 percent of the railroad workers, compared to 46.6 percent in the working-age population of Ukraine. Railroad HCNRs (same as for the nation except in the working age bracket) were weight-averaged by age composition of the railroad enrollment. As a result, the aggregate HCNR was obtained (cell N49 of *Table 2b*).

Comparison of HCNRs for the total and railroad-employed populations of Ukraine -- 4.71 versus 4.31 -- leads to the conclusion that objective need for health care for the railroad enrollees, as derived from demographic characteristics of enrollment, is 91.5% of the national aggregate. Such variation is determined by three peculiarities of the railroad pool: (1) significantly lower share of the elderly; (2) lower percent of infants; (3) lower percentage of women in the working-age category. Gender differences in other age groups remained unaccounted for due to lack of data.

Since the first of the three factors plays by far the strongest role, the recommendation if not the requirement to the RHIE designers may be twofold:

*First*, coverage should be consistently secured for the industry's retirees, plus extended to the retiree's family members. The latter may be reasonably filtered by establishing procedures of benefit coordination (so as to avoid multiple coverage), and perhaps, by linking the entitlement for dependents to a certain number of years that the head of the

family would be required to work in the industry prior to retirement. Other adjustment mechanisms may be considered as well, with the general purpose to maintain the inflow of the elderly close to the national average. To keep it high enough, and relatively stable, certain reserve requirements may be set forth to allow partial capitalization of insurer's revenue with the special purpose to enable and maintain coverage of the elderly without or with limited pay-as-you-go contributions for their part. Such mechanism would ensure cross-temporal transfers for the benefit of the elderly. Conversely, if the share of age-associated high risks starts exceeding the average, co-insurance may be imposed on the retirees, or increased, if it previously existed.

*Second*, since the above ways of regulating the railroad insurance pool imply extensive demographic and financial modeling, RHIE will have to set up information systems to produce detailed data on the age and sex structure of the insured, their family status, and basic demographic and employment characteristics of the dependents. A large body of economic analyses will have to be conducted continuously to facilitate risk adjustment within the enrollment pool; estimates and projections of service costs; evaluation of investment opportunities. If information and analytic technologies are set up properly, RHIE will ensure effective management for itself, but also will generate valuable methodological experience for the rest of Ukraine's emerging health insurance systems.

### *2.2.2 Industry Health Risk Profile and Special Health Risk Groups*

To get further insights into the health status of the railroad insurance pool, the author inquired if there were health requirements that a job candidate must meet in order to be hired by a railroad employer. Current regulations provide, as was found out, that *traffic operation personnel* must go through the initial and frequent recurrent health exams to prove that he or she has enough physical fitness for the job. While specific parameters of fitness remained outside the discussion, the overall judgment by the doctors was that employment-entry and subsequent periodical physical check-ups effectively filter high health risks and facilitate early detection of at least cardiovascular and respiratory conditions, diabetes, nervous system and psychiatric disorders. Of 775,438 persons employed in the industry, 313,422,<sup>9</sup> or 40.4 percent were in the category of traffic operation personnel. This number accounts for 15.7 percent of the total enrollment in railroad health care facilities. Concurrent with previously discussed findings, the physical exam factor demonstrates that the railroad risk pool is healthier, primarily because it is biased for able-bodied people of the working age.

Another way to appraise the level of risks is to assess the presence of special health risk populations. Two such categories were taken into account: (1) population exposed to radioactive fallout during and in the aftermath of Chernobyl catastrophe; (2) disabled at war.

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<sup>9</sup> 1995 Annual Economic Performance Report. *Railroad Transportation Ukraine*; Збірник основних показників діяльності лікувально—профілактичних закладів медичної служби системи "Укзалізниця" за 1995 рік. Київ, 1996, стр. 1.

Individuals registered as victims of Chernobyl, accounted in 1995 for 5.35 percent of the population of Ukraine. Its share in the railroad health enrollment was lower: 3.72 percent (see Table 3 of the *Statistical Appendix*). Individuals in the first of the four sub-categories of the affected by Chernobyl also account for a higher share of the national population (0.49 percent), than in the railroad enrollment (0.33 percent). This sub-category covers *participants in on-site emergency relief and repair works* - the most exposed to radiation. While accurate measurements of the impact of Chernobyl catastrophe on health and utilization of health resources have not been developed yet, a strongly positive correlation may be presumed undeniable.

Conventional belief that Chernobyl is associated with intensive and costly care is not getting a convincing proof from the epidemiological statistics. Disease incidence rates are comparable in aggregate and for most classes of diseases. Utilization of resources, however, is and will be higher in the Chernobyl group for two reasons: (1) Chernobyl victims are monitored much more closely: e.g., annual comprehensive preventive examination is required by law. (2) Disease rates are growing fast specifically in classes associated with high and catastrophic costs. In 1987-94 the number of newly diagnosed cases of malignant neoplasm increased among adults and adolescents 2.2 times; blood and blood-creating organs -- 3.9 times. Disease incidence among children below 14 years grew in 1987-94 from 786.6 up to 1502.6 cases per 1,000 affected by the catastrophe, an increase by 91 percent; among them diseases of blood- and blood-creating organs grew 2.7 times.<sup>10</sup> Further growth is projected for all age groups as far as tumors and blood and blood-creating organ disorders are concerned. For adults and adolescents the morbidity rates will grow faster than nation-wide for diseases of cardiovascular, respiratory, and digestive systems: children -- for respiratory, nervous and digestive system diseases and disorders.

The share of disabled at war in the railroad risk pool was 0.61 percent in 1995, significantly below 5.46 percent nation-wide. This largely reflects a lower share of the aged and may suggest that the variation is much higher than 1.5 times, assumed previously and built in the comparative estimation of the railroad demographic mix.

In sum, restrictive requirements to health as part of the hiring practice, plus lower share of special risk categories reinforce the finding from the previous section: the railroad risk pool is healthier than the population of Ukraine in total and as such needs less health resources. The variation may be quantified in part from the differences in age/sex structure. The HCNR for the railroad pool was found to be 91.5 percent of the national aggregate. The disease incidence rate, on the other hand, is 59.3 percent. Hence, of the 40.7 percentage points of the total difference only 9.5 points could be attributed to variation in the health status. About three quarters of aggregate variation ought to be explained by differences in supply-induced demand.

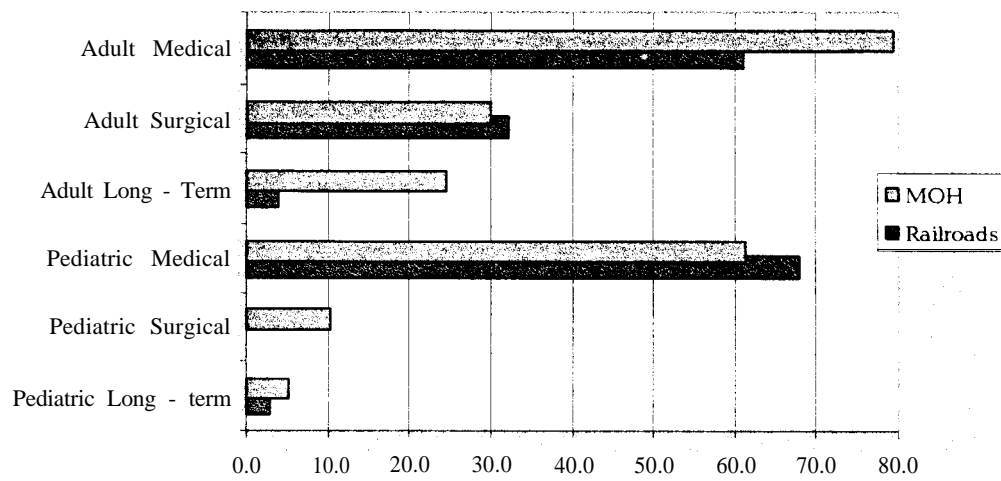
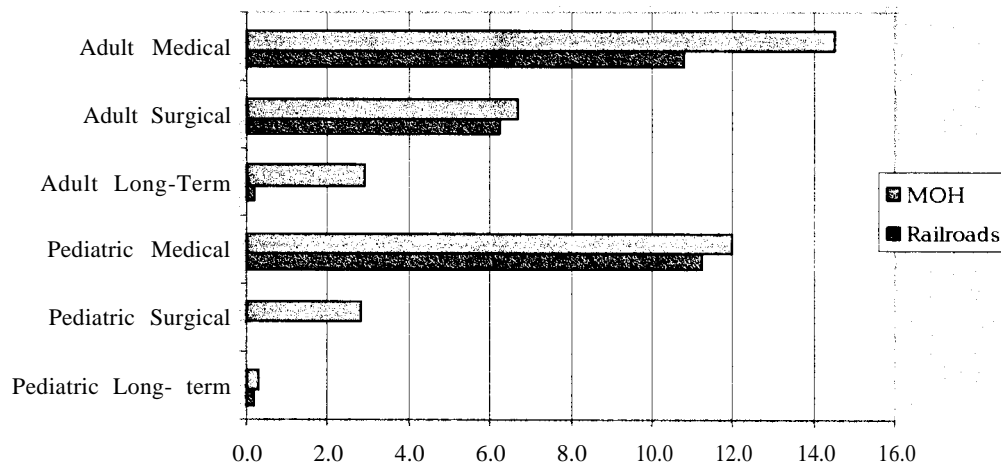
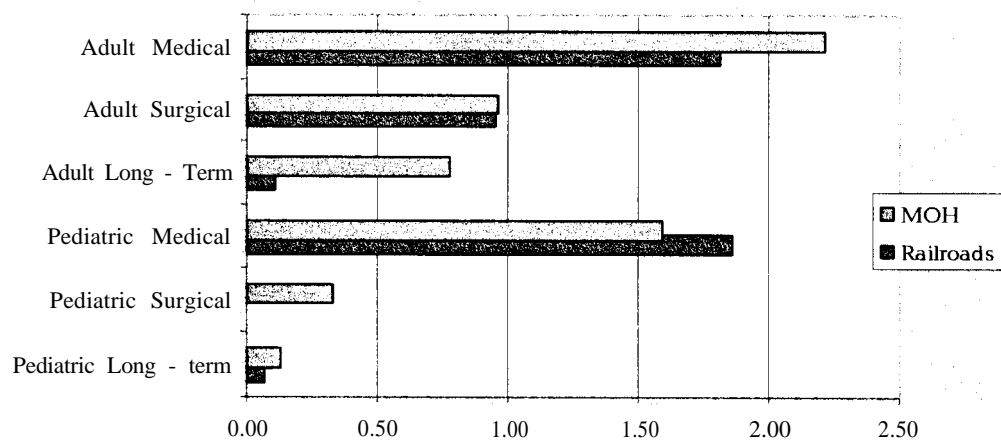
## 2.3 Supply of Health Resources

The analysis is structured by type of services, i.e. inpatient, outpatient, and paraclinical.

### 2.3.1 Inpatient Services

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<sup>10</sup> Mischenko A., *et al.* Chernobyl and Health of the Nation: Ten Year After. *The Medicine of Ukraine*. 1996 (1): 11-12 [in Russian].

**Chart 5. Beds Per 10,000 Enrollees, 1995****Chart 6. Admission Rate, 1995, Percent****Chart 7. Inpatient Days, Per Capita, 1995**

Supply of hospital services is expressed in : (1) inpatient clinical volume, as derived from production capacity and utilization; and (2) intensity of care. (i) Production capacity may be best measured by provision of hospital beds - also indicative of the physical volume of other inputs to inpatient care production. (ii) The proxies for utilization in this context would be admission rate and number of patient days. (iii) Intensity of care could be estimated and compared for different groups of facilities using casemix severity index. Since such indicator does not exist in the Ukrainian health care management and reporting, more partial and descriptive measures would have to be employed.

Altogether, three listed factors allow to estimate how many cases are likely to be deflected by the health care network, either because the total number of beds is insufficient, or available beds cannot be used at full, or there are no clinical resources to deal with high-severity conditions.

In 1995 provision of beds per 10,000 population was 95.7 in the railroad enrollment pool and 118.5 nation-wide. The admission rates were 17.0 and 21.8 percent respectively. The per capita number of patient days was 2.88 and 3.79.<sup>11</sup> The railroad health care network thus, provides per equal number of enrollees and relative to the national average: 80.8 percent hospital beds, 78 percent admissions, and 76 percent patient days. Displayed data gives enough evidence to conclude that per capita physical volume of hospital services is lower in the railroad health care system than nation-wide.

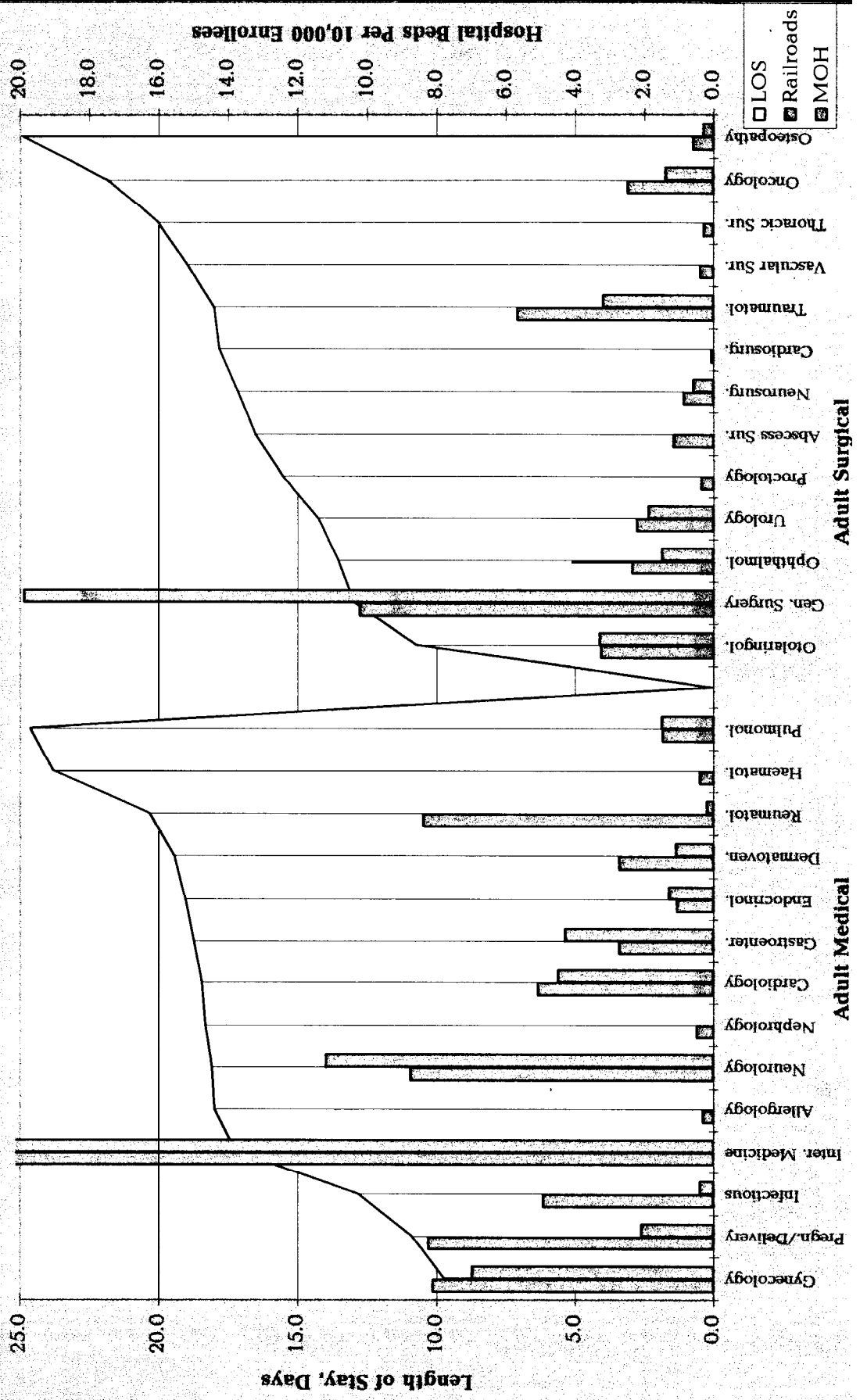
A breakdown of these aggregates by six types of inpatient care (*Charts 5-7 and Table 12b*) suggests that the railroad inpatient sector is not just proportionately smaller than the MOH inpatient sector: it has different clinical priorities and structural layout. (1) Railroads largely ignore long-term care, in particular for adults. Complete lack of tuberculosis beds for children and specialized inpatient treatment of alcohol and substance addiction (narcologic care, by NIS terminology) explains why the railroad network provides in comparison with the MOH system only 16% of beds, 6% admissions, and 14% patient days (all per capita) in long-term adult care specialties. Same rates for children's long-term care are 55%, 74% and 53% respectively. (2) The railroad delivery system does not deal at all with pediatric surgical care, except on a very limited level through general surgery departments. (3) The railroad network is considerably lower on the largest component of inpatient care, such as adult medical care: bed supply, annual admission, and inpatient day rates are 77%, 74% and 82% of the MOH levels respectively. (4) The railroads exceed the MOH by the number of beds per comparable population in pediatric medical (111%) and adult surgical (107%) care. However, admission rates are consistently lower for the railroads even in these casemix bands. (5) ALOS patterns differ significantly between two networks which will be discussed below.

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<sup>11</sup> The breakdowns of these indicators by type of inpatient care as displayed in Charts 5-7 do not add up to the above totals, since they relate specific types of care to different groups of population: either adults or children.



Chart 8. Bed Supply Ratios by LOS-Ranked Clinical Specialties, 1995



It is important to see whether and how variation in bed supply between the two hospital networks relates to resource intensity. If, for example, the railroads lag further behind the MOH in provision of beds in high intensity specialties than in low intensity ones, then supply-induced demand for hospital resources will be even lower for the part of the railroads than may be presumed based on the lower average bed supply ratio alone. Following the same logic, the overall demand for resources will be relatively higher if bed supply variation originates primarily in low intensity specialties, while in high intensity ones both systems rank equal.

To evaluate intensity of care, hospital beds were separated into 27 clinical specialties, grouped into medical and surgical care for adult patients. Specialties were ranked by ALOS. As was shown elsewhere,<sup>12</sup> in the NIS health care systems inpatient resource intensity within medical and surgical segments of the casemix is linearly proportionate to the length of stay. Therefore, LOS is an accurate proxy for intensity.

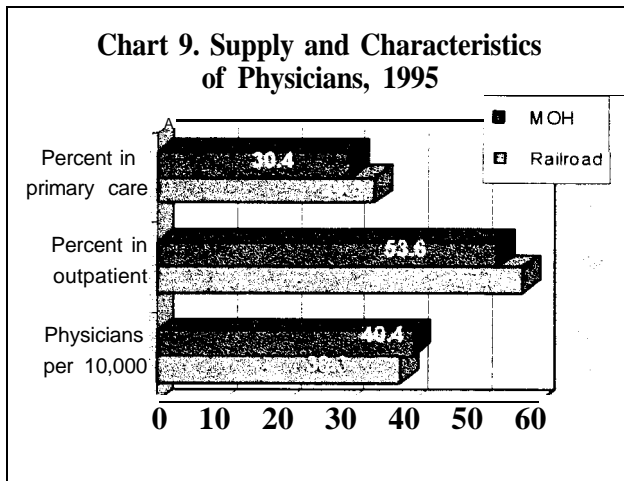
*Chart 8* may suggest that the inpatient sector of the railroad network, while offering fewer beds in general, does even more so in departments with relatively costly care. Displayed data *per se*, however, does not provide clear statistical evidence on that account. Additional insights were sought and obtained from interviews with administrators in both networks. A conventional perception of the railroad hospital system is as follows: (1) It does not deal as extensively with emergency care; (2) It customarily outsources such resource-intensive specialties as oncology and hematology; (3) It provides on a limited basis only adult psychiatric care, which although not enormously complex, does consume a large amount of resources per case due to extended ALOS. Besides, the railroad network does not maintain specialized services for alcohol and drug addicts.

Yet another attempt to analyze intensity of care was to look at it through the prism of surgical activity rate. It turned to be equally low for the railroad hospital network – 21.2 percent in 1995, and the MOH network – 21.1 percent. With such generally limited focus on acute care, slight variations in the surgical activity rate between the two networks would not be indicative of the variations in casemix intensity. Therefore, the explanatory power of this indicator was found insufficient for current analysis. One more proxy of casemix intensity -- the ICU utilization rate -- unfortunately, is not reported.

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<sup>12</sup> See A. Telyukov. Case Grouping, Rate Setting, and Updating for Incentive-Based Hospital Reimbursement. Bethesda-Tomsk: ZdravReform Program, 1994: 91-116.

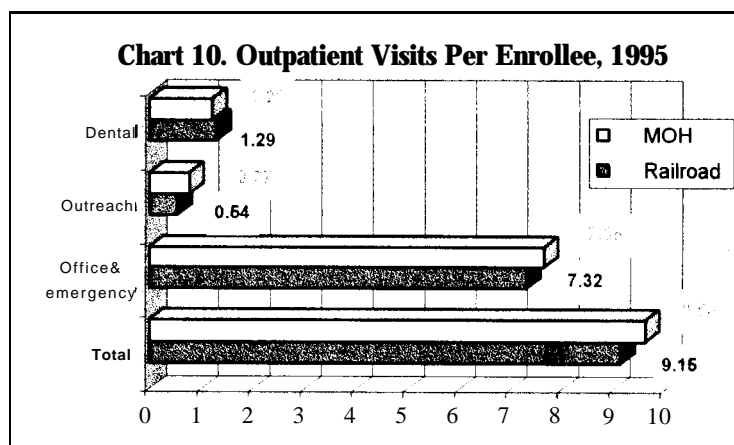
### 2.3.2 Physician Care



The physician supply rate in the railroad network is 38.3 per 10,000 enrollees, compared to 40.4 in the MOH network (Chart 9), or 95 percent. The railroad system maintains stronger focus on outpatient physician care, and within that segment – on primary care: the share of physicians practicing in outpatient settings and percent of *general* practitioners are higher in the railroad network. The total annual number of outpatient physician visits in the railroad health care network was 9.15 per enrollee

in 1995, versus 9.63 in the MOH network<sup>13</sup> (Chart 10), or 95 percent. The railroad physicians practice outreach care somewhat less than in the MOH network, which may be explained by more compact catchment areas in the MOH and, therefore, more affordable transportation costs. Finally outpatient surgical activity was examined, in addition to the displayed numbers. It turned out to be substantially lower in the railroad network (2.29 percent), than in the MOH system (3.93 percent).

A twofold conclusion derives from statistics of physician service supply and utilization: (1) No clear substitution effects could be revealed to suggest, that the volume of inpatient care in the railroad health care network may be lower, because patient flow is filtered by the *gatekeepers*. The railroad network should be credited for the fact that it keeps larger share of physician staff in outpatient, particularly, primary care. However, this is just enough to maintain supply rate of outpatient practitioners on the same level, as in the MOH system, provided that aggregate physician supply is lower in the railroad network. (2) Considerably lower outpatient surgical activity rate in the railroad network – by 58 percent -- perhaps accentuates aggregate under-supply of acute care. Altogether these two factors reinforce the

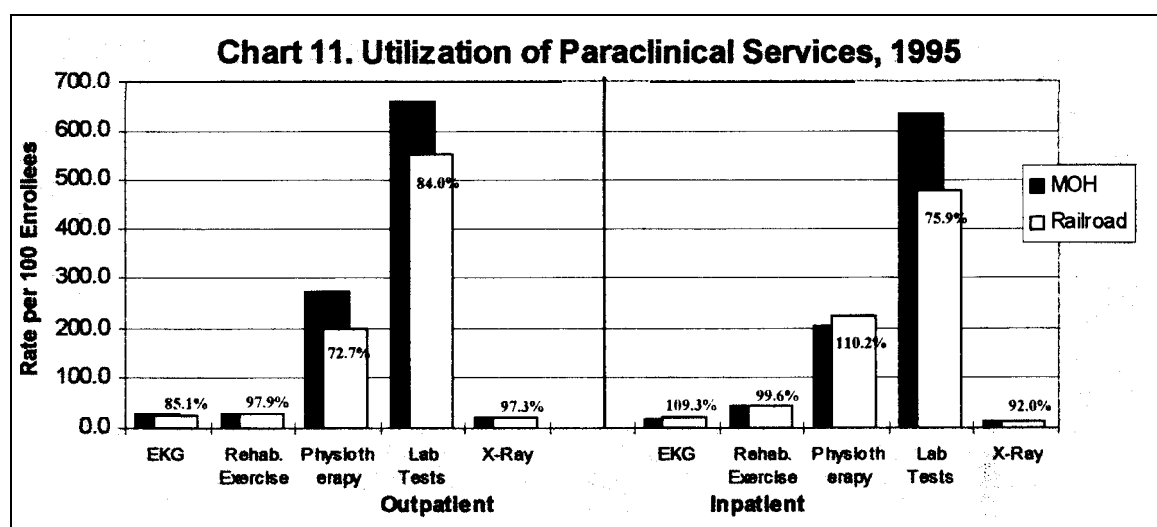


<sup>13</sup> It is not clear, however, if these are fully comparable numbers: the MOH when presenting its data specifies that it includes local emergency and sanitary aviation calls; the railroad reporting is not that specific. Comparison is conducted on the assumption that the indicator for the railroads matches in content the MOH indicator.

assumption that significantly lower *registered* morbidity in the railroad enrollment pool originates from short supply of certain services.

### 2.3.3 Paraclinical Services

Paraclinical services were not expected to change radically the overall picture of health care supply, as defined to this point by availability and utilization of hospital and physician resources. Paraclinical services are provided either upon admission to a hospital or through referral by an outpatient doctor. Their volume, therefore, would be secondary to utilization of hospital and physician services.



In conformity with such assumption, aggregate utilization rates turned out to be lower in the railroad network, than in the MOH health care system for all five types of paraclinical services. In the outpatient settings (Chart 11) the railroads rank in comparison with the MOH in the range of 82.7 percent for physiotherapy sessions to 97.3 percent for X-ray diagnostic tests performed per 100 enrollees. Inpatient utilization rates in the railroad versus MOH network vary from 75.5 percent for lab tests to 110.2 percent for physiotherapy sessions, the railroads also exceeding the MOH in inpatient utilization of EKG (109.3 percent).

Notably, the gap in inpatient utilization rates is narrower between the two health care systems, than in outpatient utilization rates. For inpatient EKG and physiotherapy the railroads even exceed the MOH per 100 enrollees. This demonstrates that in the railroad network the utilization of paraclinical services, being generally low, is biased for inpatient settings, while the MOH focuses on outpatient provision of paraclinical services, which overall, of course, is more cost-efficient.

The general conclusion from the analysis of demand for health resources is as follows. The railroad health insurance will deal with healthier populations, and by configuration of its

health care network would divest part of inpatient casemix to the MOH network. Both developments will have negative impact on the national health care finance and delivery systems. To avoid adverse risk and case selection expected to result for the MOH system from the implementation of the railroad health insurance initiative, the designers of the experiment should be requested to internalize both biases. To that effect, (1) coverage should be extended as soon as possible to the retirees from the railroad industry and dependent family members of the employees; (2) RHIE should enforce a mechanism of payment to the MOH facilities for out-of-the-network referrals of the railroad-insured patients.

## **2.4 Financial Sustainability of the Key Payor**

This section of analysis has a double purpose: (1) To estimate in broad terms the ability of the railroad industry to pay for health insurance and compare railroads with other major sectors of the national economy by availability of funding that may be channeled into this new employer-based program of social insurance; (2) To assess the burden of health-earmarked payroll tax that may be levied on the railroads under alternatively set eligibility criteria and premium rates.

### *2.4.1 Comparative Financial Performance*

Two pools of money – payroll and net profits -- should be considered in order to assess the viability of a health insurance tax. Presumably, resources may be shifted between these two parts of value added if so is necessary for optimization of social contributions. Usually, building insurance premiums in the operating costs is desirable, since it makes them less exposed to fluctuations in business conditions.<sup>14</sup> There are limits, however, to reallocating net profits to payroll taxes. Those limits are set by the opportunity costs of diverting funds from fixed investments, inventory maintenance, accumulation of reserves, etc. To a great extent this becomes the matter of choice of investing in human versus fixed capital, and as such should be geared to maximization of aggregate marginal productivity of the input mix.<sup>15</sup>

Following the direct purpose of this analysis, which is to estimate financial sustainability of RHIE, railroad transportation was compared with the other 24 industries of the national economy. *Chart 12* shows, that RTU has relatively good chances to sustain the new tax. First, being located above the trend line it appears to be among the well-off sectors in terms of overall financial performance. Second, it has a balanced mix of per capita payroll and profits. This allows to rely on both in anchoring contributions for health insurance.

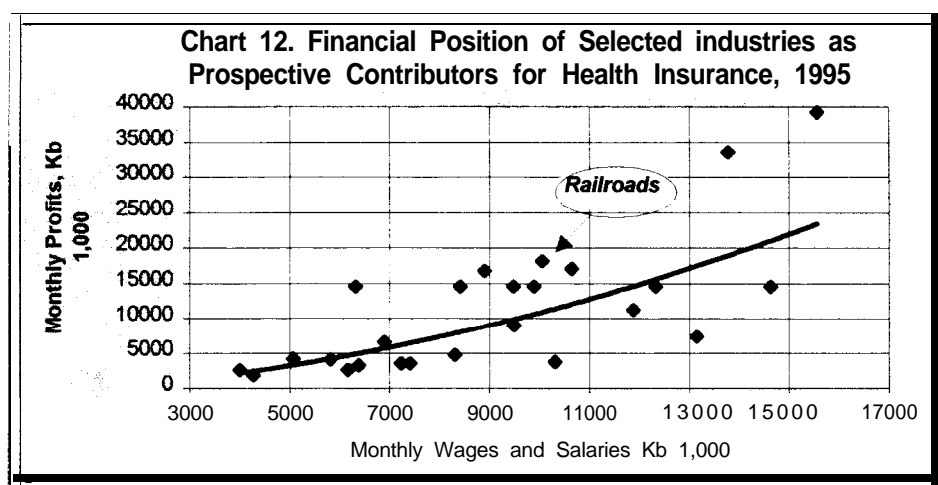
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<sup>14</sup> On the other hand, by reducing profit margin we make the total price less flexible and responsive to price competition, since payroll taxes, once they are locked in operating costs, are not as easy to give up as may be part of the profits.

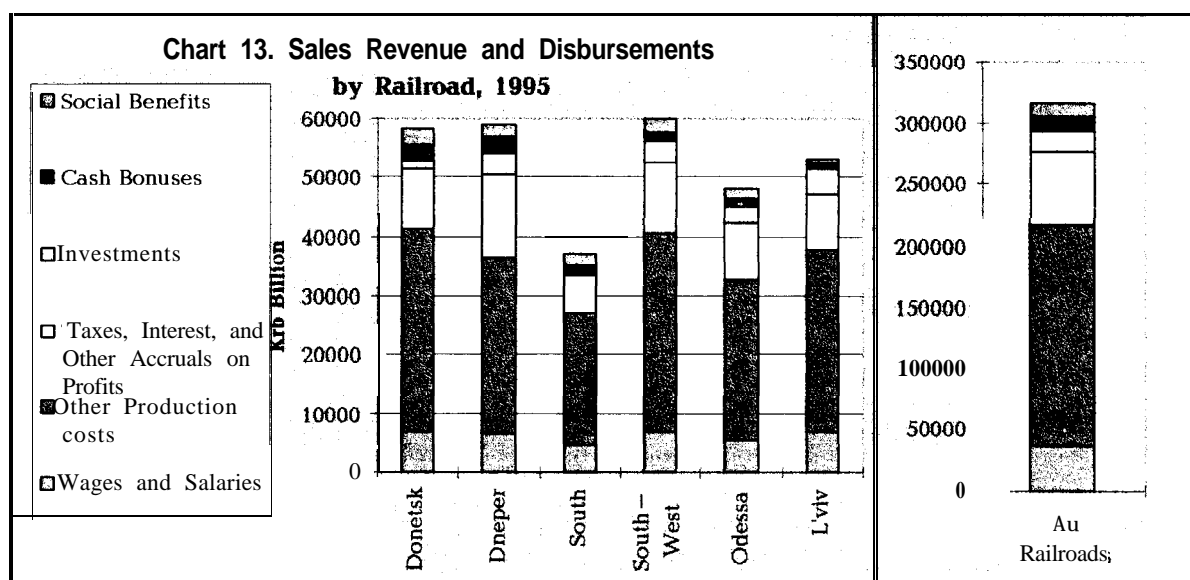
<sup>15</sup> RHIE should be acclaimed as a remarkable precedent whereby one of the nation's largest employers seeks to put away with decades-long practice of severe under-investing in human resources.

To locate more precisely a niche for the new tax, the author analyzed existing allocations of profits to mandatory versus discretionary uses. In parallel, sensitivity of payroll and profits to

health insurance premiums was assessed under alternatively defined eligibility, contribution rates and public/private mix in CMS/RTU financing.



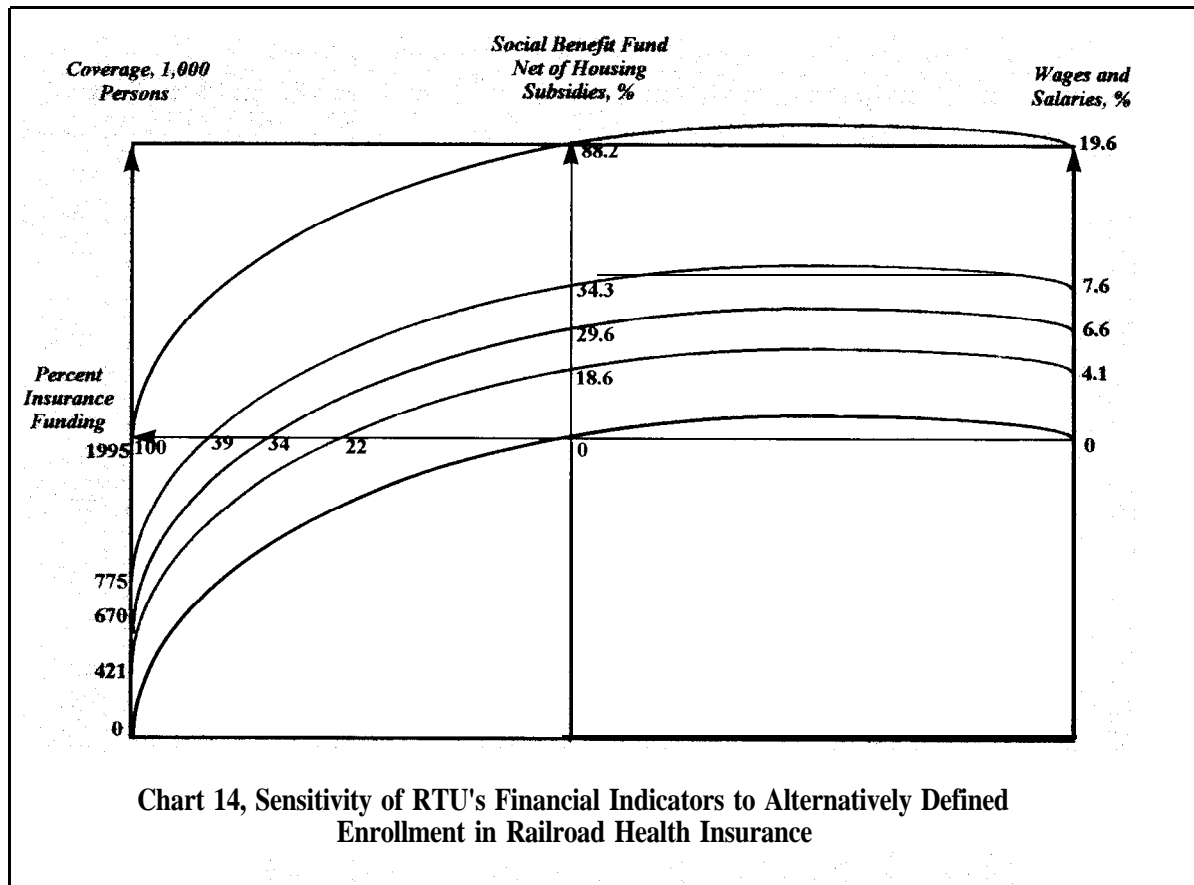
remain employers' top social responsibility and, therefore, have to be considered as a non-discretionary component of the SBF outlays. (2) Another feature, common of all scenarios, is reliance on age/sex *unadjusted* per capita health spending. Put differently, the model ignores adverse demographic changes that occur in the enrollment pool as eligibility broadens. (3) Per capita health spending in the railroad network is presumed on the national average level. The phenomenon of cross-subsidization that reflects higher levels of current spending in the railroad provider network could not be quantified due to lack of data and, therefore, had to be ignored. (4) Finally, simulations are set on budget-neutrality, specifically, the amount of spending in 1995<sup>16</sup>.



The *first, baseline scenario* (the lowest, black curve) reflects the current status of the system. The curve intercepts all four axes at zero point: zero health insurance coverage matches zero contributions, be it from the social benefit fund or payroll. Correspondingly, public/private mix in health financing relies entirely on budgetary funding, the latter allocated by the Treasury to the RTU and earmarked for recurrent funding of CMS/RTU-operated health care network.

<sup>16</sup> As everywhere in the NIS, health spending at present is reported in three tiers: (1) *Planned expenditure* usually is the highest and represents monies obligated for the health care sector. (2) *Accruals* reflect the actual utilization of input resources. This indicator is employed in current analyses for both the MOH and CMS/RTU networks. It reflects aggregate amount of resource consumption, both backed up and not backed up with cash. (3) *Disbursements* yield the lowest amount -- cash, effectively transferred on bank accounts of health care facilities. A persistently significant gap between the second and the third indicators reflect a wide discrepancy between accrual accounting as practiced by providers and cash accounting as practiced by purchasers of medical services. Such gap may be explained by governments inability to comply with its pledges to the health care sector. Specifically, Chapter 3 expenditures (*Utilities and Housekeeping*) remain largely without funding. They are reported by facilities who can't stop consuming gas, heat, water, and electricity, but not by financing authorities, who periodically write off facilities' debts, resulting from lack of on-budget funding.

The *second scenario* (green curve) stems from the objective of covering traffic operation personnel alone. Such arrangement will require earmarked payroll tax of 4.1 percent, which, if charged to profits, will take 18.6 percent of the SBF. In a budget-neutral setting this will bring the share of health insurance monies in the total amount of RTU-wide health spending up to 22 percent. Such scenario, although affordable in financial terms, may hardly be considered equitable: cream-skimming and discrimination of non-traffic employees in access to basic fringe benefits are obvious.



The *third scenario* (blue curve) extends eligibility to a larger cohort of the RTU employees, namely personnel in railroad occupations. Premium rate under this scenario grows up to 6.6 percent of payroll, or 29.6 percent of SBF. Contributions for health insurance would provide 34 percent of budget-neutral recurrent funding for RTU-operated provider network. In terms of social desirability, this scenario has the same flaw as the previous one: a large part of the workers is bluntly discriminated against in access to a relevant social benefit.

The *fourth scenario* (crimson curve) implies that all railroad employees are entitled to industry-based health insurance. Payroll tax rate in this case goes up to 7.6 percent, which equals 34.3 percent of the SBF. Correspondingly, health insurance will account for 39 percent of industry-wide health spending. This scenario represents a good



equity/sustainability trade-off and is based on clear-cut eligibility criterion, which makes it easy to administer. However, it does not meet the enrollment requirement set out in one of the previous sections: eligibility remains restricted to better-than-average risks.

Finally, the *fifth scenario* (red curve) implies comprehensive coverage: both employees, dependent family members, and part of retirees are eligible. Contribution rate soars to 19.6 percent of the payroll, or 88.2 percent of the SBF. Premium revenue provides 100 percent of health spending. Non-discriminatory as it may be, this scenario creates financial strain for the RTU, and for that reason may not be regarded viable.

Recommended choice from the above menu of alternatives is based on two options: (1) Gear the system to *Scenario 4* at the initial stage of RHIE implementation. (2) Over 6 to 12 months increase eligibility halfway from Scenario 4 to Scenario 5, by targeting particularly risky and/or socially vulnerable populations, i.e. children and retirees. In a mid-term perspective (one to three years) enrollment would be extended to spouses. Significant correction in the proposed time line is likely to result from the introduction of territory-based mandatory health insurance. If and once it happens, it would generate substantial savings for the RTU-based insurance due to coordination of benefits. This will make full family coverage more affordable, thus bringing it closer in time.

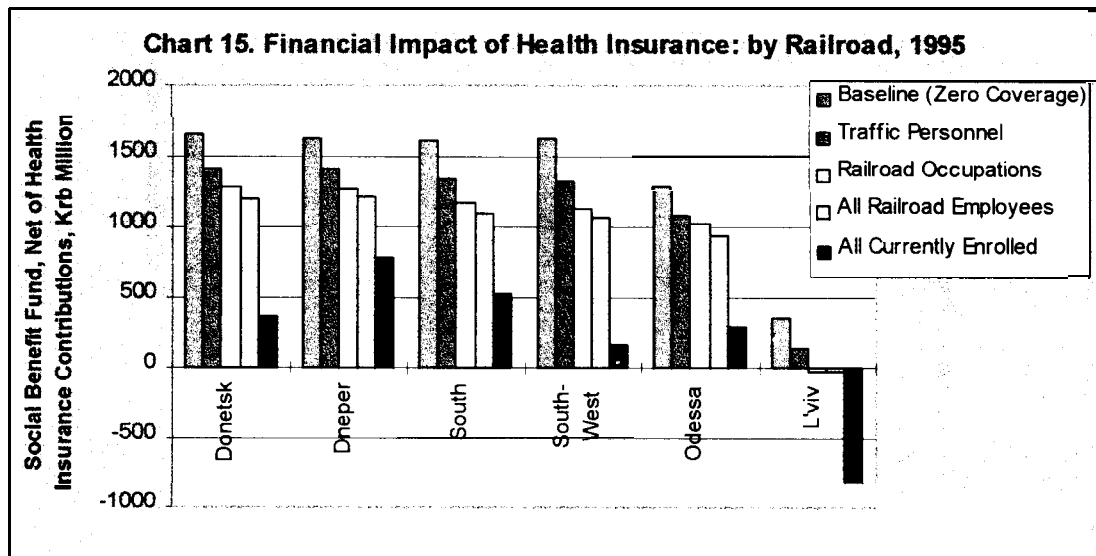
#### 2.4.3 Financial Implications for Specific Railroads

The validity of the proposed recommendations was tested on data reported for each railroad. What is viable for the RTU at large may not be so for particular railroads with below-the-average financial performance, or certain revenue allocation patterns. Financial analysis focused on railroads is expected to lead to a more restrictive view of how much in health insurance costs may be sustained by the industry as a whole and each of its geographic components - railroad administrations. Also, the need for and scope of cross-subsidization will derive from such analysis.

In addition to four assumptions set out in the previous section, subsequent analysis is based on the need for health care resources, cross-sectionally adjusted for supply. Since the hospital sector dominates the system, provision of hospital beds per 10,000 enrollees was selected as a single proxy of supply. Budget-neutral spending for each railroad was multiplied by supply-adjustment factor - a ratio that scales railroad-specific bed supply rate against the CMS/RTU average.

*Chart 15* shows that all railroads with the exception of the L'viv Railroad are more or less evenly positioned in terms of availability of funding for health insurance, if allocated from the SBF. Considering *Scenario 4* - coverage extended to all railroad employees -- as the benchmark scenario (see previous section), five railroads can sustain it without over-committing their fringe benefit funds. If the fifth scenario is introduced, the Dneper and South Railroads will remain better off, while the other three will come fairly close to the point of financial exhaustion.

The sixth, L'viv Railroad stands alone, compared to the rest of the industry. The impact of health insurance will make itself felt much stronger in L'viv. Starting from the third scenario, which extends eligibility to all railroad occupations, the SBF plummets into the red and reaches significant deficit as simulations proceed to the fifth scenario -- health coverage stretched to all customers currently served by railroad-operated health care providers. Interestingly enough, the L'viv Railroad has a peculiar financial and allocative layout. It is very competitive in terms of payroll, ranking first in per capita wages and salaries. It holds only the fifth place as far as net profit is concerned, lagging 33 percent behind the leader, Dneper Railroad (see Table 17a of the Statistical Appendix). Out of somewhat smaller than average net profits - and this is the main reason why the SBF in L'viv becomes depleted so fast -- only 10.8 percent of net profits goes to the SBF, versus 29.5 across the RTU (see Table 17b). Conversely, fixed investment accounts for 70.6 percent of net profits, reported by the L'viv Railroad, as compared to 43.9 percent for the entire RTU.



The displayed data should not lead to a hasty conclusion that health insurance is not feasible at the L'viv Railroad. Longer-term, it is likely to be the other way around: being the leader in per capita wages and salaries, L'viv would enjoy the strongest tax base for earmarked payroll contributions. Under preferred transitional approach, however, whereby premiums are charged to the SBF, there will be difficulties. To resolve them, the RTU will have to align all the railroads by certain rules with respect to investment rates, and/or enforce cross subsidies through a uniform health insurance premium rate. An in-depth discussion of investment and social priorities industry-wide and by railroad will have to be held in order to arrive at an optimal mix of investment/fringe benefit equalization mechanisms. Most likely, the L'viv Railroad will have to give up part of its investment allocations to be able to qualify for the RTU health insurance on an equitable basis. Under current allocation patterns and if *Scenario 4* is preferred, the five railroads will have to subsidize the L'viv Railroad with about one quarter of their contributions to health insurance.

Ironically, the above analysis might have revealed the true motivation of the L'viv Railroad health system leaders: they advocate an industry-wide health insurance plan, seeking to become the largest net recipient of cross-subsidies, if contributions are levied on SBF. This should not be taken as a serious interpretation, though, since it is unlikely that anybody conducted this kind of analysis so far or otherwise looked into financial and allocation patterns by railroad.

## 2.5 Efficiency in Utilization of Health Resources

The efficiency factor is of paramount importance in assessing the implications of RHIE. *First*, it determines to a great extent the impact that the national health [insurance] system may experience if the RTU network of providers is allowed to opt out. On the assumption that separate, off-budgetary funding ensures better access to resources, the attitudes towards RHIE would depend on whether additional outlays go to a relatively efficient or relatively inefficient health care system. Larger allocations to an inefficient system would just increase the amount of inefficiency. From that standpoint, the RHIE should be made contingent upon its leaders' pledge for structural adjustment, cost-containment, better consumer choice, higher quality and productivity standards. If tied to these goals, the experiment should be endorsed. The inflow of funding, if stabilized and, perhaps, enhanced by means of health insurance, would be used then to facilitate cost-efficient innovation. Conversely, if the RTU health care system is inefficient and seeks to survive on the old track, the RHIE is not worthwhile: steadier funding would be wasted on perpetuating the antiquated system.

*Second*, efficiency is the factor of survivability of the system. Savings are tantamount to additional funding. If achieved, they may in part compensate for the lack of resources, which, needless to say, will persist in the foreseeable future. By building the efficiency factor in the framework of economic analysis (see *Chart 2*), we enable an important adjustment which may increase RHIE feasibility against the levels, assessed in the *Financial Sustainability* section of the algorithm.

Apart from how conducive the RHIE leaders are to the values of efficiency, there is the issue of how large and approachable the potential for efficiency gains is. In the Ukrainian as well as any other NIS setting the answer to this question comes from a low actual level of efficiency. Savings may be initially sought and achieved in a relatively accessible layer of financial incentives, organizational and operational measures.

Data on utilization, presented and in part analyzed in Chapter 2, leads to the following findings and conclusions:

The RTU health care system in comparison with the MOH health care system apparently maintains stronger focus on outpatient care in general, and primary care in particular.<sup>17</sup> A relatively large share of RTU-affiliated physicians practice in outpatient and, specifically,

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<sup>17</sup> This should not overshadow the fact, that both systems are heavily biased for hospital services.

primary care settings (Chart 9). The RTU hospital system, as analyzed by six types of inpatient care, operates for the most part with relatively fewer beds per 10,000 enrollees, lower admission rates, and per capita number of inpatient days (Charts 5-7). However, these data are not conclusive enough to suggest that the RTU provider network is more efficient in terms of utilization of services and structural layout. Lower provision of hospital beds and fewer admissions are likely to be “compensated” with out-of-the-network referrals or deny of care in the non-covered specialties. If adjusted for these phenomena, the inpatient/outpatient mix would come to be similar to what is reported for the MOH health delivery system. Both networks, equally lacking incentives, would be close to each other in terms of (in)efficiency.

The level of efficiency may be estimated as low by international criteria (Chart 15). There is a disproportionate emphasis on inpatient services: mere 8.4 percent of recurrent funding was allocated in 1995 to free-standing outpatient facilities in the RTU health care network. If hospital-affiliated polyclinics are included in that number, the share of outpatient providers would increase up to 25-30 percent. Even then it will be low by modern standards. Supply of beds, admission rates, and per capita number of inpatient days are higher than in the United States respectively by a factor of 2.5, 1.5 and 4.1<sup>18</sup>. Conversely, hospital productivity is low: ALOS varies by specialty of adult short-term care in the range of 10 to 25 days (see Chart 7). The average for adult acute care is 16.9 days, significantly higher than the OECD average of 9.2 days or U.S. national average of 6.3 days. Occupancy is 80 percent on average (292.7 days in 1995) but subject to huge seasonal fluctuations.<sup>19</sup>

By making quoted numbers evolve towards reasonably lower utilization of services and higher utilization of production capacity, we would significantly improve sustainability of RHIE and let it happen under resource constraints that otherwise may disallow the experiment. A cost-saving potential of specific efficiency vehicles could be roughly projected, using the same database as in current analysis. For more sophisticated modeling, demand/supply, cost and utilization data will have to be generated in each kind of outpatient service and casemix group. To that end, case-level reporting by multiple clinical and cost parameters would have to be arranged throughout the RTU network of providers.

While the magnitude of prospective efficiency gains is yet to be estimated, incentives for efficiency should be built in RHIE from its inception. Such incentives should encourage following changes: (1) Closing down redundant facilities and/or departments wherever

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<sup>18</sup> 1991 U.S. indicators are compared with 1995 indicators for the CMS/RTU. For the U.S. see: Health United States, 1992 and Healthy People 2000 Review, DHHS Pub. No. (PHS) 93-1232. Wash: GPO. 1993, pp 122-125, 153-155; For CMS/RTU see: Збірник основних показників діяльності лікувально-профілактичних закладів медичної служби системи “Укралізниці” за 1995 рік. Київ, 1996, стр. 1, 74–75.

<sup>19</sup> In the Central Teaching Hospital of South-Western Railroad in Kiev a predominant part of bed capacity is shut down and sealed in summer. The latter is a formal requirement for the hospital to be exempt from paying *Chapter 3* costs (*Utilities*), while beds are out of operation. This half-way attempt to achieve cost-savings, is common of the environment where providers of care do not have direct financial rewards for being efficient.

accessibility is deemed not to be affected; (2) Consolidating delivery systems by sharing patients and capacity with MOH and/or other company-based providers in the area, in order to keep across-the-board occupancy optimal, coordinate structural adjustment, and minimize social costs of economic rationalization in the health care sector; (3) Intensifying clinical work at the hospitals to reduce ALOS and increase casemix intensity; (4) Shifting care outpatient by means of developing both pre- and post-admission services; (5) Increasing emphasis on primary care through effective economic and clinical mechanisms of gate-keeping; (6) Expanding consumer choice across participating providers and regulating it towards more flexibility for out-of-the-network self-referrals; (7) Discouraging moral hazard in consumer behavior; (8) Securing more autonomy for providers of services in judging on clinical appropriateness of specific types of care and procedures.

A coordinated progress towards listed objectives will be possible only if economic self-regulation becomes the main driving force in the RTU health care network.

### **CHAPTER 3. PROPOSED ECONOMIC MECHANISMS**

The following basic steps will ensure a desirable economic mechanism for RHIE:

1) Configuration of the experiment should be specified in terms of the basic benefit package and public/private mix in RTU health financing. All personal health services will be pooled in the insurance package. Budgetary monies, currently allocated to operating budgets of railroad-affiliated facilities will be partly replaced by insurance premiums, levied primarily on the railroad employers. On-budget funding will focus on the following targets: (1) Programs and services with major impact on public health, including immunizations; pharmaceuticals and dentures for selected population categories; abatement of epidemics, technological catastrophes, and natural disasters; (2) Matching transfers for RHIE to close the gap that may occur in premium revenue due to general economic hardship for the railroads; (3) An outlier pool of money to back up insurance reimbursement for catastrophic costs; (4) A lump-sum transfer to create a start-up capital for RHIE; (5) *Ad hoc* investments. Most importantly, the service mix should not be artificially split between different payors so that responsibility for patients' health becomes diffused, and providers of care indulge in manipulative behavior to maximize revenue under dual system of financing.

2) Participating providers would be formally accredited to operate for one year under the railroad health insurance plan. By the end of the first year, as temporary accreditation expires, more sophisticated rules and procedures will be developed to scrutinize each facility's operation for compliance with the basic clinical, economic, and management requirements. Facilities that fail to pass accreditation, will be disqualified from further participation in RHIE or granted a provisional permit, e.g. valid for four months. At the end of the probation period it will be renewed or canceled, depending on provider's ability to match the requirements set forth in the accreditation rules.

Not much competition may occur among providers with largely non-overlapping catchment areas and operating in the industry with impeded market entry. Such are the basic features of

the RTU health care delivery system. Transition to competition, therefore, will take time and require a multi-faceted strategy. Specifically:

- 3) Providers of services will be transferred to output-based reimbursement: outpatient facilities -- fee-for-service; inpatient facilities - per patient discharge. Rate schedules will be enforced as resource-intensity relative value scales for outpatient procedures, and broadly defined casemix categories for hospital services. Facility rates will be initially determined by facility-specific costs. Subsequently, however, the weight-averaging will be introduced and adjusted on a quarterly basis by steadily increasing weights of the network-wide average costs. By the end of the first year 50 percent of facility costs would be determined by network averages. Rate schedules will be arranged in two tiers, reflecting cost patterns in urban versus rural facilities.
- 4) Patient flows will be partially deregulated. The right of choice of primary care provider will be granted to patients from the onset of the experiment, albeit existing market structure will render it largely disabled. Full reimbursement based on RHIE rates will be extended to non-participating providers only for referrals by participating physicians. Out-of-the-network self-referrals will be prohibitively under-reimbursed, e.g. at 50 percent, in the first half a year. By the end of the first year the rate would increase up to 80 percent, thus initiating competition between RTU and MOH delivery systems.
- 5) After the first year of the experiment, RTU will endorse truly competitive contracting by making both railroad and MOH providers eligible for industry-based insurance funding. RTU will seek reciprocity in treatment of railroad facilities by MOH and/or national MHI purchasing authorities. The recommendation to the government of Ukraine would be to allow railroad-affiliated facilities compete for health resources from general revenue of the local budgets and/or oblast MHI budgets.
- 6) As long as railroad insurance continues on its own tax base and industry-operated provider network, it will remain autonomous from the health care systems, organized by territory, be it currently existing MOH or, most likely, future MHI systems. However, market integration will become imminent once incentives are created for providers of services to maximize market share. A viable trade-off between autonomy and integration would be for RTU, or its authorized health insurance carriers to sign an agreement with the National MHI Fund (or alternatively defined purchasing authority in the future national system of health financing). The agreement will provide that the railroad health insurance system shall abide by the national health insurance policy guidelines, e.g. comprehensive coverage, based on a minimally required contribution rate, and unacceptability of experience rating. It will set forth the goal of achieving full portability of health insurance policies across RTU and MOH/MHI systems, based on converging costs and gradual integration between the two provider networks. This will also imply that both systems will pursue common efficiency targets. At the same time RTU will retain surplus premium revenue that it will be able to enforce and collect from railroad employers above and beyond the nationally mandated rate. It will be allowed to apply higher rates of reimbursements to providers of services as long as they are affordable to the railroad industry. The pace of

integration between the railroad and MOH/MHI health care networks will be set and regulated on the RTU side. It will be open to negotiations but not subject to administrative pressure. Finally, railroad health insurance will define its own legal and financial mechanisms and incentives for providers, without waiting until they are legalized on the national level. Innovative decisions will be evaluated, primarily, for compliance with the basic goals of equity, efficiency, and sustainability in the RHIE, and if found productive from this threefold viewpoint, would be recommended for the national health care system.

7) RHIE will liberalize market entry for new providers of care. A particularly favorable environment will be created for general physician practices, so that they could set up their offices and start competing with the existing primary care institutions and each other. Independent specialty physician practices, diagnostic and rehabilitative centers of various clinical profiles will be welcome in the health care market to increase supply of services with currently unmet demand or provided at a low level of cost-efficiency.

8) Both emerging and long-established facilities will be granted full legal and operational autonomy. Specifically, (1) a bank account will be open for each provider; (2) mandatory workload and staffing schedules will be eliminated, and hiring/firing procedures simplified; (3) line-item budgeting, based on unit norms of financing by resource input category will be abolished, leaving at provider's discretion the issues of internal resource allocation; (4) outsourcing versus in-house production will be decided upon by each provider; therefore restrictions on entering into contractual relationships with other suppliers of goods and services will be lifted; (5) practices and activities relating to rationalization will be liberalized -- e.g. renting out, liquidation, and renovation of assets; divestiture of services and lines of business; mergers; direct marketing to alternative payors; diversification into non-medical sources of revenue.

9) Once competitive market of health services is endorsed and entered by financially motivated, independent providers, CMS/RTU and TMSUC, preferably in coordination with MOH/MHI will carry out open enrollment campaign to enable free consumer choice of primary care for the railroad-insured. Provider contracts will be signed provider contracts with all polyclinics and general practices, preferred by RHIE customers. The authorized insurance carrier may rule in its agreements with GPs that referrals should be channeled to the best, by combination of quality and cost-efficiency, providers of secondary and tertiary services. This will lead to the erosion of a privileged status of CMS/RTU-operated facilities, initially thought out as an implicit arrangement under RHIE. The funding will flow to the smartest providers, regardless of their affiliation. Competition will be enhanced. Financial interests of the insurance carrier will take over RTU's protectionist attitudes towards railroad health care facilities. Pro-competitive provider contracting will become an internally-driven process, once capitation method of financing is introduced, turning GPs into fundholders. In order to excessive spending on secondary and tertiary care, fundholding family practices will maximize primary and outpatient services, and will select the most efficient subcontractors among specialists, diagnostic centers and hospitals. Institutional borderlines, once created between the MOH and CMS/RTU, will be erased.

10) Alternatively, the RHIE may assume a more protective stance, arguing that industry-generated health financing should be used to improve financial status of the railroad service delivery system. Such approach is likely to prevail at the initial stage of RHIE. Even then, administrative protectionism in its most straightforward form should be replaced by more subtle regulations. GPs, operating under *captive* agreement with railroad health insurance, would be advised to refer their comprehensively enrolled patients to the most efficient railroad facilities, wherever there is an option. If no such option is locally available, the choice would be based on how significantly railroad providers are lagging behind their MOH competitors in terms of costs and quality of services. If such gap is found to be significant (certain quantitative criteria might be set out for that purpose), economic and clinical considerations should take over the bureaucratic ones. More independence should be reserved for the fundholders who operate on *both railroad and MOH/MHI* funding, or predominantly *outside RHIE*. Since little data will be available to back up comparative - RHIE versus MOH/MHI -- economic and clinical appraisals, the borderline between the two provider networks should be drawn by type of care and clinical specialty. This could be done in an annual round of planning and negotiations among fundholding GPs and their prospective contractors. Payors should be allowed certain bargaining power in influencing referral patterns.

11) Management accounting systems, as well as patient registration, clinical coding, and billing forms should be introduced from the onset of RHIE to generate flow of information relevant for competitive contracting, optimization of patient flows, and, eventually, calculation of prospective capitation rate. Full capitation and fund-holding should be tested in a dry-run mode during the first year of RHIE, by tracking for each primary care source (polyclinic or GP) utilization rates for high volume and particularly costly services, out- and inpatient components of personal health service spending, referral patterns by subcontracting provider. After such information is analyzed at the end of the first year, contractual relationships will be formalized between each fundholding facility and its established partners. Funding, which during the first year will be centrally disbursed by the payor to each facility, will be managed by the fundholders through an internal resource allocation process in the second year.

12) While focusing on insurance premiums as prospectively main source of health financing, RHIE will examine the potential of additional instruments, in particular user charges. In opposition to a widespread belief that direct out-of-pocket payments must be introduced on a massive scale as a panacea to current financial problems of the national health care sector, RHIE will exercise a more balanced approach. User charges will not be intended to replace the main sources of funding. They will be applied on a selective and supplementary basis with a threefold purpose: (1) To enable family coverage through co-insurance payments from the railroad workers, who are breadwinners in their families; (2) To allow extended benefit package by means of co-insurance or co-payments at the point of service; (3) To prevent moral hazard by charging an affordable fixed amount of money per physician visit, hospital admission and prescription.



13) Importantly, listed lines of economic innovation are topical and viable regardless of the ownership status of insurance carrier and providers of care. Originally RHIE was meant to be anchored in quasi-public insurance program and government-operated medical facilities. However, the experiment does give a good opportunity to create a more pluralist ownership structure in the health care sector. Fully autonomous and competing providers, expected to establish themselves under RHIE, would become naturally susceptible to private ownership. Mechanisms of ownership diversification would constitute a part of the experiment's agenda.

14) Facing multiple challenges and risks, coming from a newly created competitive environment, providers of care will seek adjustments in the external legal setting. The architects of RHIE will have to advocate favorable tax treatment for physician practices and medical facilities, preferential access of providers to credit resources, exemption of RTU-affiliated providers from line-item budgeting, compliance enforcement mechanisms to ensure premium collection, exclusion from certain restrictions on financial operations of insurance companies. Since listed issues - critically important for the success of RHIE -- touch upon fiscal, banking, insurance, and ownership regulations, a concerted action involving various government agencies would be organized with the purpose of working out reconciliatory procedures and, eventually, broad consensus in key policy areas. To allow for inevitable delays in decision-making process, the agenda for cross-agency interactions should be set out at an early stage of the experiment and handled proactively.

## **CONCLUSION AND FOLLOW-UP WORK**

The RHIE may be recommended to the government of Ukraine as a valuable initiative, promoted by a group of dedicated professionals prepared to work hard to make it a success. The thrust of this initiative is twofold: (1) to improve the well-being of a core cohort of Ukrainian workers in one of its most vulnerable aspects, i.e. access to quality health care services; (2) to increase chances for economic and professional survival for doctors and health professionals, who represent one of the best established segments of the national system of health service delivery. The experiment seeks to mobilize financial resources, scarce as they are in Ukraine's currently sluggish economy, but, above all, resources of human motivation to make the health care sector more sustainable, equitable, and efficient. If adjusted for certain inconsistencies in design, targeted for a carefully defined set of priority goals, backed up with professionally developed economic and financial mechanisms, and enhanced through competent administration and oversight, the railroad health insurance experiment (RHIE) will become an impressive pilot ground for improving financing and delivery of medical services. The experiment would generate practices and experiences that may pave the way to the health sector reforms nation-wide.

Following guidelines are proposed for RHIE in the report:

1. The experiment should align its legal framework and economic mechanisms in ways that would ensure its compatibility, or at least minimize clashes, with future national health insurance. Since at present reforms are at the embryonic stage, configuration of the

national systems is hard to project. For that reason, RHIE should be prepared to lead the way and make reconciliatory adjustments retrospectively, as the national system takes its final shape. In order to benefit from RHIE trailblazer's experience, the government may want to invite key managers of the experiment to sit on task forces and panels of experts, assigned to develop the concepts and blueprint for the national health care reform.

2. To offset adverse risk and case selection for the MOH system -- a problem likely to arise from the implementation of RHIE -- the designers of the experiment should be required:
  - (1) to gradually load the risk pool with railroad retirees and dependent family members;
  - (2) to enable reimbursement of costs for out-of-the-network referrals.
3. The only realistic way to accommodate payroll tax earmarked to health insurance, is to levy it on the Social Benefit Fund (SBF) - a part of net profits of the railroads. Opposite to charging the new tax to operating costs, this will spare the rest of the economy from bearing the costs of railroad health insurance. The experiment should begin with 7.6 percent contribution rate, which will account for 34.3 percent of SBF, enabling 39 percent of the industry-wide health spending out of health insurance monies, and limiting enrollment to railroad employees. Over 6 to 12 months eligibility would be expanded to include children and retirees. In a mid-term perspective (1 to 3 years) enrollment would be extended to spouses. Significant correction in the proposed time line is likely to result from the introduction of territory-based mandatory health insurance. If and once it happens, it would generate substantial savings for the *Railroad Transportation Ukraine (RTU)* health insurance plan due to coordination of benefits. This would make full family coverage more affordable, thus making it happen sooner. These projections are based on the assumption of non-degrading financial performance of the railroads.
4. RHIE should not boil down to a fundraising effort, revolving around a newly mandated payroll tax. Its primary goal is a *comprehensive* restructuring of health care financing and delivery. The target here is to create managed competition among autonomous, financially motivated providers of services by facilitating market entry, introducing competitive contracting, incentive-based methods of reimbursement, and enforcing consumer choice. The experiment should contribute to gradual integration of RTU- and MOH-affiliated health care networks.
5. A Supervisory Committee should be set up to oversee and coordinate RHIE. Representatives of the Cabinet of Ministers, Insurance Supervisory Committee of Ukraine, MOH, the RTU Central Medical Service (CMS/RTU), *TransMedStrakh - Ukraine* Company (TMSUC) should be appointed members of the Committee. *ZdravReform* would make itself available for participation in the Committee's proceedings. This Report would be circulated to members of the Committee, translated professionally and with the elements of cultural/professional adaptation. *ZdravReform* will testify at the Committee's inaugural session in September to enhance RHIE-related planning and decision-making. Graphic presentation set will be developed for that session.

The following activities are set out for the initial stage of RHIE:

- A. Population and patient survey to estimate the degree of consumer satisfaction with services available from CMS/RTU versus MOH providers. This survey will allow to test a conventional yet unsubstantiated notion that railroad employees prefer industry-based services. Under this notion, CMH argues that targeting insurance reimbursement under RHIE to CMS/RTU network is in the workers' interests. Also, findings from the survey will allow to project cross-boundary flows of patients under alternatively established levels of out-of-the-network reimbursement. This is important for setting the pace of integration between the two provider networks and the intensity of structural adjustment in the CMS/RTU network, that may be required if it opens up to external competition.
- B. Cost-accounting work to implement a standard methodology of in- and outpatient service costing. Cost data resulting from the application of modern methodologies will be used to create consistent rate schedules and make the system cost-transparent for the main payors, who would then be able to introduce competitive contracting, based on cross-sectional cost comparisons. Also, reliable cost data will become a powerful tool of financial management for providers, seeking rationalization. Resource intensity scales will be based on 1996 costs, studied on a sample of up to 20 facilities, representative of the central, railroad, junction, and local layers of the CMS/RTU network.
- C. Development of evaluation criteria to monitor RHIE progress towards higher efficiency, consumer and provider satisfaction. Behavioral responses of the main stakeholders should be measured to see if the incentives are set correctly and how effectively they are being implemented.
- D. Development of an MIS system that would integrate patient registration, clinical utilization, cost accounting, billing and payment, and quality assurance modules. The FINECO/FINFACT database, designed and currently used by TMSUC for its voluntary health insurance plan and representing a good working prototype, will be adjusted and extended.
- E. Pilot demonstration of fundholding general practices. Two physician practices will be created on an experimental basis in L'viv Oblast within CMS/RTU network and gradually turned into full fundholders. RHIE will design Clinical Practice Guidelines for GPs; help identify and hire key staff; designate physical plant; arrange open enrollment; calculate and negotiate capitation rates; assist in establishing contractual relations with referral providers which would lead to creation of an integrated managed care plan; monitor referral and utilization patterns; track cost flows; ensure financial stability by instituting an outlier reimbursement mechanism.
- F. Development of quality assurance and appropriateness criteria, targeted at clinical outcomes and actively contributing to the improvement of clinical practice. In particular, RHIE will develop admission and discharge criteria for conditions that constitute over 50 percent of hospital admissions. The experiment will design a list of GPs competencies

which will lead to development of specialist referral criteria. An oversight body will be set up to control the implementation of clinical practice improvement instruments.

A time line and scope of effort implicated by the proposed activities would be discussed with the leaders of the experiment and the RHIE Supervisory Committee.

**STATISTICAL APPENDIX**

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	A	B	C	D	E	F	G	H	I	J	K
<b>1</b>	<b>Table 1. Enrollment in the CMS/RTU Health Care Network by Occupational Category, 1995</b>										
<b>2</b>	Railroad Administration	Total enrollment		Employed in the railroad industry		Of that number, personnel in railroad occupations		Dependants of railroad workers and railroad retirees		General public	
<b>3</b>		Persons	Percent of the total	Persons	Percent of the total	Persons	Percent of the total	Persons	Percent of the total	Persons	Percent of the total
<b>4</b>	Donetsk	347570	100.0	123521	35.5	99893	28.7	224049	64.5	N/A	N/A
<b>5</b>	L'viv	363701	100.0	118258	32.5	117505	32.3	245443	67.5	N/A	N/A
<b>6</b>	Odessa	308998	100.0	106222	34.4	76993	24.9	202776	65.6	N/A	N/A
<b>7</b>	South	266356	100.0	119733	45.0	100426	37.7	146623	55.0	N/A	N/A
<b>8</b>	South – Western	401860	100.0	153585	38.2	138219	34.4	248275	61.8	N/A	N/A
<b>9</b>	Dneper	273363	100.0	133179	48.7	116204	42.5	140184	51.3	N/A	N/A
<b>10</b>	State Kharkiv Transport Polyclinic (SKhTP)	32956	100.0	20940	63.5	20940	63.5	12016	36.5	N/A	N/A
<b>11</b>	TOTAL	1994804		775438	38.9	670180	33.6	1219366	61.1	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	<b>Table 2a. Enrollment in the CMS/RTU Health Care Network by Demographic Category, 1995</b>															
2	Railroad Administration	Total enrollment		Children, Age Below 14		Infants, Age Below 1		Children, Age 1-14		Adolescents, Age 15-17		Adults		<i>Addendum: Railroad Employees</i>		
3		Number	Percent of the total	Number	Percent of the total	Number	Percent of the total	Number	Percent of the total	Number	Percent of the total	Number	Percent of the total	Total	Women	Percent Women
4	Donetsk	347570	100.0	45950	13.22	1594	0.46	44356	12.76	6222	1.79	295398	84.99	123521	54181	43.86
5	L'viv	363701	100.0	40636	11.17	1278	0.35	39358	10.82	5968	1.64	317097	87.19	118258	46601	39.41
6	Odessa	308998	100.0	50768	16.43	1431	0.46	49337	15.97	3289	1.06	254941	82.51	106222	42623	40.13
7	South	266356	100.0	39830	14.95	1330	0.50	38500	14.45	3737	1.40	222789	83.64	119733	46396	38.75
8	South – Western	401860	100.0	55490	13.81	1694	0.42	53796	13.39	11857	2.95	334513	83.24	153585	61966	40.35
9	Dneper	273363	100.0	45103	16.50	1072	0.39	44031	16.11	6098	2.23	222062	81.23	133179	59424	44.62
10	SKhTP	32956	100.0		0.00		0.00	0	0.00	1167	3.54	31789	96.46	20940	12966	61.92
11	TOTAL	1994704	100.0	277777	13.93	8399	0.42	269378	13.50	38338	1.92	1678589	84.15	775438	324157	41.80



	E	F	G	H	I	J	K	L	M	N	O	P
18	<b>Table 2b. Health Care Need of the Population of Ukraine: Aggregate and by Age/Sex Group, 1995</b>											
19	Age Group/Category	Male			Female			Both Sexes				
20		Population Number	Health Care Need Ratio	Units of Health Care	Population Number	Health Care Need Ratio	Units of Health Care	Population Number	Units of Health Care	Health Care Need Ratio	Units as Percent of the Total	Population ratio
21	0-1	264999	10	2649990	250881	5	1254405	515880	3904395	7.57	1.61	1.00
22	2-4	1247175	7	8730225	1186911	3.5	4154188.5	2434086	12884414	5.29	5.31	4.73
23	5-9	1923967	3.7	7118678	1850826	3	5552478	3774793	12671156	3.36	5.23	7.33
24	10-14	1935061	3	5805183	1872338	2.5	4680845	3807399	10486028	2.75	4.33	7.40
25	15-17	1101797	2.2	2423953	1805484	3	5416452	2907281	7840405	2.70	3.23	5.65
26	18-19	746273	2.2	1641801	1071340	3	3214020	1817613	4855821	2.67	2.00	3.53
27	20-24	1864689	2.6	4848191	714200	3.5	2499700	2578889	7347891	2.85	3.03	5.01
28	25-29	1662519	2	3325038	1656263	4	6625052	3318782	9950090	3.00	4.10	6.45
29	30-34	1913551	2	3827102	1959808	4	7839232	3873359	11666334	3.01	4.81	7.52
30	35-39	1911531	2.5	4778828	2005043	4.5	9022693.5	3916574	13801521	3.52	5.69	7.61
31	40-44	1772394	3.5	6203379	1909494	5	9547470	3681888	15750849	4.28	6.50	7.15
32	45-49	1380129	4.5	6210581	1552634	5.5	8539487	2932763	14750068	5.03	6.08	5.70
33	50-54	1241056	5	6205280	1486829	6.5	9664388.5	2727885	15869669	5.82	6.55	5.30
34	55-59	1663676	6.5	1663676	2063917	7	14447419	3727593	16111095	4.32	6.65	7.24
35	60-64	1058584	7.5	1058584	1415979	8.5	12035821.5	2474563	13094406	5.29	5.40	4.81
36	65-69	1083544	8	8668352	1767956	9.5	16795582	2851500	25463934	8.93	10.50	5.54
37	70-74	550680	10	5506800	1262890	10.5	13260345	1813570	18767145	10.35	7.74	3.52
38	75-79	262835	10.5	2759768	699801	11	7697811	962636	10457579	10.86	4.31	1.87
39	80-84	216416	12	2596992	666654	12	7999848	883070	10596840	12.00	4.37	1.72
40	85+	104449	13	1357837	369134	13	4798742	473583	6156579	13.00	2.54	0.92
41	Total population	23905325	3.66	87380237	27568382	5.62	155045980	51473707	242426217	4.71	100.00	100.00
42												
43	<b>All Health Care Systems</b>											
44	Infants, 0-1	264999	10.00	2649990	250881	5.00	1254405	515880	3904395	7.57	1.61	1.00
45	Children, 1-14	5106203	4.24	21654086	4910075	2.93	14387512	10016278	36041597	3.60	14.87	19.46
46	Adolescents, 15-18	1101797	2.20	2423953	1805484	3.00	5416452	2907281	7840405	2.70	3.23	5.65
47	Adults, working age	14155818	2.73	38703875	12355611	4.61	56952043	26511429	95655918	3.61	39.46	51.50
48	Adults, retirement age	3276508	6.70	21948333	8246331	9.34	77035569	11522839	98983901	8.59	40.83	22.39
49	Total population	23905325	3.66	87380237	27568382	5.62	155045980	51473707	242426217	4.71	100.00	100.00
50												
51	<b>CMS/RTU System</b>											
52	Infants, 0-1							8399	63567	7.57	0.74	0.42
53	Children, 1-14							269378	969304	3.60	11.28	13.50
54	Adolescents, 15-18							38338	103391	2.70	1.20	1.92
55	Adults, working age	775782	2.73		607391	4.61		1383173	4920804	3.56	57.25	69.34
56	Adults, retirement age							295416	2537690	8.59	29.53	14.81
57	Total population							1994704	8594755	4.31	100.00	100.00

	A	B	C	D	E	F	G	H	I
<b>1</b>	<b>Table 3. Enrollment in the CMS/RTU Health Care Network by Special Health Risk Category, 1995</b>								
<b>2</b>		Railroad Administration							Total
<b>3</b>		Donetsk	L'viv	Odessa	South	South – Western	Dneper	SKhTP	
<b>4</b>	<b>Nationally registered populations, exposed to radioactive fallout during and in the aftermath of Chernobyl Catastrophe – TOTAL</b>								
<b>5</b>	Number	682	17639	524	874	53941	431	16	74107
<b>6</b>	Percent enrollment	0.20	4.85	0.17	0.33	13.42	0.16	0.05	3.72
<b>7</b>	<i>First Group: Participants in On-Site Emergency Relief and Repair Works:</i>								
<b>8</b>	Number	641	326	471	764	3941	414	14	6571
<b>9</b>	Percent enrollment	0.18	0.09	0.15	0.29	0.98	0.15	0.04	0.33
<b>10</b>	<i>Second Group: Evacuated from the zone of radioactive contamination</i>								
<b>11</b>	Number	27	70	47	27	149	17	2	339
<b>12</b>	Percent enrollment	0.008	0.019	0.015	0.010	0.037	0.006	0.006	0.017
<b>13</b>	<i>Third Group: Residents of the areas subject to intensive monitoring</i>								
<b>14</b>	Number	14	17243	6	83	49851			67197
<b>15</b>	Percent enrollment	0.004	4.741	0.002	0.031	12.405	0.000	0.000	3.369
<b>16</b>									
<b>17</b>	<b>Disabled at War – TOTAL</b>								
<b>18</b>	Number	2262	1016	2048	3098	2625	1177	29	12255
<b>19</b>	Percent enrollment	0.65	0.28	0.66	1.16	0.65	0.43	0.09	0.61
<b>20</b>	By disability group:								
<b>21</b>	Disability group 1	121	34	88	219	204	92	1	759
<b>22</b>	Disability group 2	1571	617	859	1464	1499	707	13	6730
<b>23</b>	Disability group 3	570	365	1101	1415	922	378	15	4766

	A	B	C	D	E	F	G	H	I
1	<b>Table 4. Morbidity Rates for Adult and Children Enrolled in the CMS/RTU Network, 1995, Cases per 10,000</b>								
2		Railroad Administration							
3		Donetsk	L'viv	Odessa	South	South – Western	Dneper	DKhTP	Total
4	<b>Adults</b>								
5	Registered cases	6830.7	7050.8	5627	6713	7279.3	8643.2	2854.5	6929.
6	Of that number:								
7	Newly diagnosed cases	3855.6	3537.8	2684.6	3528.7	4241.6	4510.9	1552.6	3693.
8	Registered for long term care in dispensaries	1921.6	2116.2	2356.9	2679.1	2166.3	2964.7	1015.8	2297.
9	<b>Adolescents</b>								
10	Registered cases	10951.6	8444.1	11895.8	8321.6	10443.4	8907	5422.5	9718.
11	Of that number:								
12	Newly diagnosed cases	8950.3	6693.6	9886.9	6715.9	8099.2	7238.7	3952.5	7760.
13	Registered for long term care in dispensaries	1947.4	976.6	2693.5	911.8	1549.6	1268.8	1417.3	1503.
14	<b>Children</b>								
15	Registered cases	11008	10083	9044	9683	10857	8139		983
16	Of that number:								
17	Newly diagnosed cases	9508	8351	6835	7592	8649	6634		794
18	Registered for long term care in dispensaries	1317	1722	2193	1964	2067	971		17
19									
20	<b>Table 4a. Morbidity Rates for Populations, Enrolled in the CMS/RTU Versus MOH Health Care Facilities, 1995</b>								
21	Population category	Newly registered cases per 10,000							
22		Railroad	MOH	Railroad/MOH, %					
23	Adults and Adolescents	6992	12204	57.3					
24	Children	9835	13358	73.6					
25	Total population	7378	12440	59.3					

	A	B	C	D	E	F	G
1	<b>Table 5. Morbidity by Class of Disease, Selected Conditions, and Age Category: CMS/RTU Network, 1995</b>						
2		Adults		Adolescents		Children	
3		Total cases	Percent	Total cases	Percent	Total cases	Percent
4	Total	1169149	100	38118	100	274592	100
5	Including:						
6	Infectious and parasitary	41487	3.55	1165	3.06	13423	4.89
7	Neoplasms	34650	2.96	55	0.14	648	0.24
8	Endocrine, metabolic, and immune system disorders	35377	3.03	483	1.27	2879	1.05
9	Nodular thyroiditis	1494	0.13	7	0.02		
10	Obesity					978	0.36
11	Diabetes mellitus	25903	2.22	34	0.09	117	0.04
12	Blood and blood – creating organs disorders	1627	0.14	76	0.2	2647	0.96
13	Anemia	1151	0.1	59	0.15	2309	0.84
14	Ferric lacking anemia's					1812	0.66
15	Psychiatric disorders	16557	1.42	80	0.21	1845	0.67
16	Nervous system and organs of sense disorders	150368	12.86	4744	12.45	20656	7.52
17	Infant cerebral palsy					601	0.22
18	Epilepsy without psychiatric disorders					348	0.13
19	Vegetovascular distonia	12983	1.11	743	1.95		
20	Peripheral nervous system disorders	11709	1			293	0.10
21	Glaucoma	4628	0.4				
22	Myopia	11636	1	1423	3.73	3746	1.36
23	Disorders of the ear & mastoid prosessus					5230	1.9
24	Acute othitis					4203	1.53
25	Chronic othitis	4496	0.38	109	0.29	5230	1.90
26	Acoustic nerve disorders	4991	0.43	58	0.15	231	0.08
27	Cardiovascular diseases	148279	12.68	364	0.95	2735	1
28	Rheumatism – all forms	524	0.04	23	0.06	144	0.05
29	Chronic faryngitis, nasofaryngitis, sinusitis					620	0.23
30	Hypertonic disease – all forms	49706	4.25	10	0.03		
31	Ischemic disease	46769	4				
32	Myocardial infarction	1089	0.09				
33	Stenocardia	10598	0.91				
34	Cerebrovascular disorders	21633	1.85				
35	Stroke	2123	0.18				
36	Respiratory diseases	317576	27.16	19978	52.41	178364	64.89
37	Pneumonia					1354	0.49
38	Chronic tonsil glands diseases	6673	0.57	942	2.47	7993	2.91
39	Allergy rinitis					250	0.09
40	Chronic bronchitis	17822	1.52	207	0.54	310	0.11
41	Bronchial asthma	3755	0.32	100	0.26	823	0.3
42	Diseases of digestive system	120112	10.27	3242	8.51	18232	6.64

	A	B	C	D	E	F	G
2		Adults		Adolescents		Children	
3		Total cases	Percent	Total cases	Percent	Total cases	Percent
43	Gastric ulcer & duodenal ulcer disease	22882	1.96	173	0.45	85	0.03
44	Gastritis & duodenitis	20619	1.76			4070	1.48
45	Chronic hepatitis					102	0.04
46	Functional stomach disorders					341	0.12
47	Gall bladder disorders	2306	0.2	1191	3.12		
48	Cholangitis	12184	1.04	354	0.93	3747	1.36
49	Genital & urinary system disorders	68908	5.89	755	1.98	4373	1.59
50	Acute glomerulonephritis	93	0.01	1	0.002	73	0.03
51	Chronic glomerulonephritis	1068	0.09	30	0.08	165	0.06
52	Kidney infections	5149	0.44	202	0.53	1893	0.69
53	Chronic pyelonephritis	4168	0.36	162	0.42	1125	0.41
54	Uterus cervix erosions	8482	0.73				
55	Complications in pregnancy, delivery, and postpartum	8039	0.69	25	0.07		
56	Diseases of skin and subcutaneous tissues	67207	5.75	2308	6.05	12306	4.48
57	Skeletal, muscular & connective tissue disorders	82539	7.06	1167	3.06	4485	1.63
58	Rheumatoid arthritis	2774	0.24	22	0.06	87	0.03
59	Deforming artrosis	7776	0.67	103	0.27		
60	Podagra	733	0.06				
61	Congenital anomalies	631	0.05				
62	Congenital anomalies of the heart & circulatory system					851	0.31
63	Congenital subluxation of the femoral joint					461	0.17
64	Unspecified conditions of the perinatal period					1305	0.48
65	Unspecified conditions	528	0.04	44	0.12	628	0.23
66	Injuries and poisonings	75264	6.44	3529	9.26	7574	2.76
67	Hyperplasia of the thyroid gland of the 1 & 2 stage	5190	0.44	843	2.21	4613	1.68

	A	B	C	D	E
<b>1</b>	<b>Table 6. Newly Registered Disability: the CMS/RTU Network, Cases and Rates, 1995</b>				
<b>2</b>	Railroad Administration	Number of cases per 100 working enrollees	Days of disability per 100 working enrollees	Average length of disability: days per case	Newly registered case of long – term disability per 1,000 working enrollees
<b>3</b>	Donetsk	88	1016.1	11.5	3.
<b>4</b>	L'viv	73.7	1010.5	13.7	3.
<b>5</b>	Odessa	72.3	925.4	12.8	3.
<b>6</b>	South	82.9	1088.1	13.1	4.
<b>7</b>	South – Western	79.7	920.9	11.6	3.
<b>8</b>	Dneper	78.9	928.3	11.8	4.
<b>9</b>	DKhTP	60.8	845.3	13.9	
<b>10</b>	<i>TOTAL</i>	<i>79.4</i>	<i>978</i>	<i>12.3</i>	<i>3.4</i>

	A	B	C	D	E	F	G	H	I
<b>1</b>	<b>Table 7. Physician Staff: the CMS/RTU Network, 1995</b>								
<b>2</b>		Scheduled FTE positions			Staffed positions			Provision of doctors:	
<b>3</b>		Total number	Practicing in outpatient settings:		FTE		Physical persons		Scheduled FTE per 10,000 population
<b>4</b>			Number	Percent	Number	Percent of scheduled	Number	Percent of scheduled	
<b>5</b>	Donetsk	1095.25	611.8	55.9	1007	91.9	768	76.3	31
<b>6</b>	L'viv	1481.25	919.0	62.0	1478	99.8	1245	84.2	40
<b>7</b>	Odessa	965.25	595.8	61.7	961.25	99.6	737	76.7	31
<b>8</b>	South	1176	723.5	61.5	1164.5	99.0	789	67.8	44
<b>9</b>	South – Western	1437	808.0	56.2	1362	94.8	1036	76.1	35
<b>10</b>	Dneper	1050	645.5	61.5	1016	96.8	823	81.0	38
<b>11</b>	Central Teaching Hospital – Kharkiv	127	5.5	4.3	123	96.9	85	69.1	
<b>12</b>	Central Teaching Hospital – L'viv	265	56.5	21.3	254	95.9	202	79.5	
<b>13</b>	DKhTP	45.5	45.5	100.0	45.5	100.0	28	61.5	13
<b>14</b>	<b>TOTAL</b>	<b>7642.25</b>	<b>4411</b>	<b>57.7</b>	<b>7411</b>		<b>5713</b>		<b>38.</b>

	A	B	C	D	E	F	G	H	I	J	K
1	Table 8. Primary Care Physicians: the CMS/RTU Network, 1995										
2		Railroad Administration									Total
3		Donetsk	L'viv	Odessa	South	South – Western	Dneper	CTH – Khar'kiv	CTH – L'viv	DKhTP	
4	Internists										
5	Total number, FTE	200.8	244.8	167.8	221.5	269.8	197.3	4.5	36.0	16.3	1358.6
6	Per 10,000 enrollees	5.78	6.72	5.43	8.32	6.71	7.22	0	0	4.93	6.81
7	Including, practicing in outpatient settings:										
8	Number	147.3	181.3	132.8	169.0	203.3	152.5	0.5	7.5	16.3	1010.3
9	Percent of FTE positions	73.3	74.1	79.1	76.3	75.3	77.3	11.1	20.8	100.0	74.4
10	Obstetricians–Gynecologists										
11	Total number, FTE	62.0	59.8	50.0	72.0	74.5	55.5	1.0	6.0	2.5	383.3
12	Per 10,000 enrollees	1.78	1.64	1.62	2.7	1.85	2.03	0	0	0.76	1.92
13	Including, practicing in outpatient settings:										
14	Number	33.3	35.5	30.8	34.3	35.0	31.8	0.0	5.0	2.5	208.6
15	Percent of FTE positions	53.6	59.4	61.5	47.6	47.0	57.2	0.0	83.3	100.0	54.3
16	Pediatricians										
17	Total number, FTE	115.0	149.5	109.8	125.5	153.8	130.5	0.5	15.0	0.0	799.5
18	Per 10,000 enrollees	3.30	4.11	3.55	4.71	3.82	4.77	0.00	0.00	0.00	4.00
19	Including, practicing in outpatient settings:										
20	Number	92.0	118.3	88.8	100.0	124.5	102.8	0.0	1.0	0.0	627.3
21	Percent of FTE positions	80.0	79.1	80.9	79.7	81.0	78.7	0.0	6.7		78.5
22	Total primary care physicians										
23	Total number, FTE	377.8	454.0	327.5	419.0	498.0	383.3	6.0	57.0	18.8	2540.6
24	Per 10,000 enrollees	4.37	5.19	4.22	6.27	5.09	5.63	0.00	0.00	4.37	5.19
25	Including, practicing in outpatient settings:										
26	Number	272.5	335	252.25	303.25	362.75	287	0.5	13.5	18.75	1845.5
27	Percent of FTE positions	72.1	73.8	77.0	72.4	72.8	74.9	8.3	23.7	100.0	72.6
28	As percent of total physicians	37.5	30.7	34.1	36.0	36.6	37.7	4.9	22.4	41.2	34.3



	A	B	C	D	E	F
1	<b>Table 9. Utilization of Outpatient Physician Services: the CMS/RTU Network, 1994</b>					
2		Outpatient physician encounters				<i>Total annual visits per enrollee</i>
3		Total	Office visits	Outreach visits	Dental visits	
4	Donetsk	2650170	2130019.0	145744	374407	7.26
5	L'viv	3089834	2506857.0	160371	422606	8.38
6	Odessa	2612614	2139036.0	176629	296949	8.90
7	South	3082205	2362762.0	209954	509489	10.85
8	South – Western	3287988	2640548.0	185138	460302	8.54
9	Dneper	3079774	2428422.0	184977	466375	10.80
10	Central Teaching Hospital Kharkiv	9501	6182.0		3314	
11	Central Teaching Hospital L'viv	237289	222126.0	155	11439	
12	DKhTP	203893	157710.0	5549	28909	5.93
13	<b>TOTAL</b>	<b>18253268</b>	<b>14593662</b>	<b>1068517</b>	<b>2573790</b>	<b>9.09</b>
14	<b>Table 9a. Outpatient Physician Visits: the MOH and CMS/RTU Health Care Systems, 1995</b>					
15		Physicians per 10,000 enrollees	Percent in outpatient settings	Percent in primary care		
16						
17	CMS/RTU	38.3	57.7	34.3		
18	MOH	40.4	53.6	30.4		
19	<b>Table 9b. Outpatient Physician Visits: the MOH and CMS/RTU Health Care Systems, 1995</b>					
20		Total	Office & emergency	Outreach	Dental	
21						
22	Visits per enrollee					
23	Railroad	9.15	7.32	0.54	1.2	
24	MOH	9.63	7.65	0.77	1.2	
25	Percent of the total					
26	Railroad	100	80.0	5.9	14.	
27	MOH	100	79.4	8.0	12.	

	A	B	C
<b>1</b>	<b>Table 10. Outpatient Surgeries: the CMS/RTU Network, 1995</b>		
<b>2</b>		Number	Percent
<b>3</b>	Total	45717	100.00
<b>4</b>	Including on:		
<b>5</b>	Organs of vision	1983	4.34
<b>6</b>	Ear, nose, throat	3700	8.09
<b>7</b>	Vessels	4	0.01
<b>8</b>	Craneal	107	0.23
<b>9</b>	Urino – genital system	15758	34.47
<b>10</b>	Skeletal – muscular system	2746	6.01
<b>11</b>	Breast	75	0.16
<b>12</b>	Skin and subcutaneous tissue	16494	36.08
<b>13</b>	Miscellaneous	4850	10.61

	A	B	C	D	E	F
<b>1</b>	<b>Table 11. Inpatient care facilities: the CMS/RTU Network, as of 01.01.96</b>					
<b>2</b>		Number	Beds		Admissions	
<b>3</b>		of facilities	Number	Percent	Number	Percent
<b>4</b>	<i>Total</i>	<i>101</i>	<i>19086</i>	<i>97.98</i>	<i>338920</i>	<i>97.95</i>
<b>5</b>	Including by level:					
<b>6</b>	Central	2	1316.0	6.90	13294	3.92
<b>7</b>	Railroad	12	4930.0	25.83	75167	22.18
<b>8</b>	Railroad section	26	6520.0	34.16	135525	39.99
<b>9</b>	Junction	44	5150.0	26.98	99731	29.43
<b>10</b>	TB adult	2	200.0	1.05	509	0.15
<b>11</b>	Children's non -- infectious	2	275.0	1.44	3448	1.02
<b>12</b>	Birth homes	2	160.0	0.84	3456	1.02
<b>13</b>	Dispensaries with inpatient component	1	150.0	0.79	828	0.24

	A	B	C	D	E	F	G	H	I	J
<b>1</b>	<b>Table 12. Hospital Resources and Utilization: the CMS/RTU Network, 1995</b>									
<b>2</b>		Railroad Administration								<i>Total</i>
<b>3</b>		Donetsk	L'viv	Odessa	South	South – Western	Dneper	CTH – Khar'kiv	CTH – L'viv	
<b>4</b>	Number of facilities	18	18	16	16	18	13	1	1	<b>101</b>
<b>5</b>	Hospital beds in operation:									
<b>6</b>	Annual average number	3452	3070	2678	2707	4012	2434	505	811	<b>19669</b>
7	Per 10,000 enrollees	98.4	84.9	83.2	96.7	96.4	82.1			<b>95.7</b>
8	Admissions	64943	48787	53462	42479	66929	49026	5833	7461	<b>338920</b>
9	Discharges	64753	48623	52968	42318	66879	48532	5696	7538	<b>337307</b>
10	Deaths:									
11	Total	455	202	346	298	428	281	95	13	<b>2118</b>
12	Per 1,000 admissions	7.01	4.14	6.47	7.02	6.39	5.73	16.29	1.74	<b>6.25</b>
13	Patient days									
14	Total	1047748	844349	849840	356581	1102525	808598	151884	175419	<b>5736944</b>
15	Per 1,000 enrollees	187.2	181.8	172.8	159.7	167.1	179.7			<b>170.1</b>
16	Occupied days per bed	303.5	275	317	279.5	274.8	332.5	300.8	216	<b>291.7</b>
17	Occupancy rate: calendar based	83.2	75.3	86.8	76.6	75.3	91.1	82.4	59.2	<b>79.9</b>
18	ALOS	16.1	17.3	15.9	17.8	16.4	16.5	26.1	23.3	<b>16.9</b>

	A	B	C	D	E	F	G	H	I	J	K
1	<b>Table 12a. Supply and Utilization of Inpatient Care Resources: the MOH Network, 1995</b>										
2	Clinical Specialties	Supply of Beds: Annual Average Number	Patients Admitted	Patients Discharged	Died	Patient Days	Bed Supply Rate, Per 10,000	Annual Admission Rate, Percent	Patient Days Per Capita	Average Length of Stay	Patients/ Bed Ratio
3	<b>ADULT MEDICAL</b>	<b>325533</b>	<b>5934327</b>	<b>5901957</b>	<b>50798</b>	<b>90599152</b>	<b>79.5</b>	<b>14.49</b>	<b>2.21</b>	<b>15.4</b>	<b>18.1</b>
4	Gynecology	33261	1070287	1069524	600	10402739	8.1	2.61	0.25	9.7	32.2
5	Pregnancy and Childbirth	33788	657064	659729	64	7185431	8.3	1.60	0.18	10.9	19.5
6	Infectious	20215	464672	459923	1246	5913219	4.9	1.13	0.00	12.9	22.8
7	Internal Medicine	109338	1987880	1964847	25167	33818521	26.7	4.86	0.83	17.2	18.0
8	Allergology	1333	24678	24710	32	445141	0.3	0.06	0.01	18.0	18.5
9	Neurology	35884	662981	655604	9739	11869339	8.8	1.62	0.29	18.1	18.3
10	Nephrology	2026	36561	36053	553	661094	0.5	0.00	0.00	18.3	17.8
11	Cardiology	20789	369665	370313	8713	6840982	5.1	0.90	0.17	18.5	17.8
12	Gastroenterology	11202	195696	198272	1239	3717506	2.7	0.48	0.09	1a.7	17.7
13	Endocrinology	4404	73911	73208	312	1394867	1.1	0.18	0.03	19.1	16.6
14	Dermatovenereology	11220	191512	192279	73	3742143	2.7	0.47	0.09	19.5	17.1
15	Rheumatology	34386	55699	55693	403	1133511	8.4	0.14	0.03	20.4	1.6
16	Haematology	1658	24861	23787	1196	566053	0.4	0.06	0.01	23.8	14.3
17	Pulmonology	6029	118860	118015	1461	2908606	1.5	0.29	0.07	24.6	19.6
18	<b>ADULT SURGICAL</b>	<b>122891</b>	<b>2728303</b>	<b>2691016</b>	<b>30822</b>	<b>39332544</b>	<b>30.0</b>	<b>6.66</b>	<b>0.96</b>	<b>14.6</b>	<b>21.9</b>
19	Otolaryngology	13366	396066	394279	312	4239701	3.3	0.97	0.10	10.8	29.5
20	General Surgery	41870	1029669	1006957	16441	13074427	10.2	2.51	0.32	13.0	24.0
21	Ophthalmology	9691	237133	236895	54	3211029	2.4	0.58	0.08	13.6	24.4
22	Urology	9130	204117	202689	1579	2894180	2.2	0.50	0.07	14.3	22.2
23	Proctology	1476	29101	29222	218	454564	0.4	0.07	0.01	15.6	19.8
24	Abscess Surgery	4786	98190	99142	2852	1639919	1.2	0.24	0.04	16.5	20.7
25	Neurosurgery	3584	70907	69442	2119	1193562	0.9	0.17	0.03	17.2	19.4
26	Cardiosurgery	284	4044	4016	94	71658	0.1	0.01	0.00	17.8	14.1
27	Traumatology	23262	425062	420987	3447	7591369	5.7	1.04	0.19	18.0	18.1
28	Vascular Surgery	1580	25653	25244	355	479367	0.4	0.06	0.01	19.0	16.0
29	Thoracic Surgery	1209	19154	18944	464	379799	0.3	0.05	0.01	20.0	15.7
30	Oncology	10170	157639	151662	2798	3317302	2.5	0.39	0.08	21.9	14.9
31	Osteopathy	2483	31568	31537	89	785667	0.6	0.08	0.02	24.9	12.7
32	<b>ADULT LONG-TERM</b>	<b>101250</b>	<b>1205110</b>	<b>584784</b>	<b>13204</b>	<b>31950255</b>	<b>24.7</b>	<b>2.94</b>	<b>0.78</b>	<b>54.6</b>	<b>5.8</b>

	A	B	C	D	E	F	G	H	I	J	K
2	Clinical Specialties	Supply of Beds: Annual Average Number	Patients Admitted	Patients Discharged	Died	Patient Days	Bed Supply Rate, Per 10,000	Annual Admission Rate, Percent	Patient Days Per Capita	Average Length of Stay	Patients/ Bed Ratio
33	Narcology	11502	102823	193751	656	3492196	2.8	0.25	0.09	18.0	16.8
34	Psychiatric	59693	983328	277678	6633	19132426	14.6	2.40	0.47	68.9	4.7
35	Tuberculosis	30055	118959	113355	5915	9325633	7.3	0.29	0.23	82.3	3.8
36	<b>PEDIATRIC</b>	<b>156646</b>	<b>3144864</b>	<b>3150792</b>	<b>6162</b>	<b>41849165</b>	<b>148.7</b>	<b>29.86</b>	<b>3.97</b>	<b>13.3</b>	<b>20.1</b>
37	Infectious	19949	415795	419190	764	4812200	18.9	3.95	0.46	11.5	21.0
38	Internal Medicine: Pediatric (Somatic)	36582	720252	717328	1708	9637602	34.7	6.84	0.92	13.4	19.6
39	Pulmonology	1531	28558	29737	18	422466	1.5	0.27	0.04	14.2	19.4
40	Endocrinology	643	10461	10718	0	197202	0.6	0.10	0.02	18.4	16.7
41	Allergology	541	8122	8691	0	162056	0.5	0.08	0.02	18.6	16.1
42	Gastroenterology	2152	34957	34446	3	648242	2.0	0.33	0.06	18.8	16.0
43	Rheumatology	1222	16883	17603	20	340407	1.2	0.16	0.03	19.3	14.4
44	Nephrology	1188	16902	18560	23	359972	1.1	0.16	0.03	19.4	15.6
45	Haematology	802	9423	9431	134	216106	0.8	0.09	0.02	22.9	11.8
46	<b>Pediatric Medical</b>	<b>64610</b>	<b>1261353</b>	<b>1265704</b>	<b>2670</b>	<b>16796253</b>	<b>61.3</b>	<b>11.98</b>	<b>1.59</b>	<b>13.3</b>	<b>19.6</b>
47	Otolaryngology	2580	76587	76838	3	746111	2.4	0.73	0.07	9.7	29.8
48	General Surgery	2626	92645	89710	107	962357	2.5	0.88	0.09	10.7	34.2
49	Traumatology	171	3429	3400	4	37918	0.2	0.03	0.00	11.2	19.9
50	Urology	667	16453	16700	3	191546	0.6	0.16	0.02	11.5	25.0
51	Abscess Surgery	637	16329	16967	12	199079	0.6	0.16	0.02	11.7	26.6
52	Ophthalmology	1585	42385	42501	2	518114	1.5	0.40	0.05	12.2	26.8
53	Neurosurgery	96	2440	2504	25	30558	0.1	0.02	0.00	12.2	26.1
54	Proctology	1476	29101	29222	218	454564	1.4	0.28	0.04	15.6	19.8
55	Osteopathy	979	14717	14900	3	280117	0.9	0.14	0.03	18.8	15.2
56	Oncology	133	1881	1830	25	35617	0.1	0.02	0.00	19.5	13.8
57	<b>Pediatric Surgical</b>	<b>10950</b>	<b>295967</b>	<b>294572</b>	<b>402</b>	<b>3455981</b>	<b>10.4</b>	<b>2.81</b>	<b>0.33</b>	<b>11.7</b>	<b>26.9</b>
58	Psychiatric	3138	24545	24630	13	904843	3.0	0.23	0.09	36.7	7.8
59	Tuberculosis	2388	5679	5610	5	439854	2.3	0.05	0.04	78.4	2.3
60	<b>Pediatric Long-Term</b>	<b>5526</b>	<b>30224</b>	<b>30240</b>	<b>18</b>	<b>1344697</b>	<b>5.2</b>	<b>0.29</b>	<b>0.13</b>	<b>44.5</b>	<b>5.5</b>
61	<b>TOTAL INPATIENT CARE</b>	<b>773815</b>	<b>13801153</b>	<b>12453557</b>	<b>138850</b>	<b>233164750</b>					

	A	B	C	D	E	F	G	H	I	J	K
1	<b>Table 12b. Supply and Utilization of Inpatient Care Resources, the CMS/RTU Network, 1995</b>										
2	Clinical Specialties	Supply of Beds: Annual Average Number	Patients Admitted	Patients Discharged	Died	Patient Days	Bed Supply Rate, Per 10,000	Annual Admission Rate, Percent	Patient Days Per Capita	Average Length of Stay	Patients/ Bed Ratio
3	<b>ADULT MEDICAL</b>	<b>10496.5</b>	<b>185249</b>	<b>184526</b>	<b>1198</b>	<b>3110948</b>	<b>61.1</b>	<b>10.79</b>	<b>1.81</b>	<b>16.9</b>	<b>17.6</b>
4	Internal Medicine	4723	82034	81485	609	1454227	27.5	4.78	0.85	17.8	17.3
5	Cardiology	770	10538	10486	211	211169	4.5	0.61	0.12	20.1	13.6
6	Rheumatology	40	428	418	0	13045	0.2	0.02	0.01	31.2	10.5
7	Allergology	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
8	Pulmonology	265	3022	2836	36	61732	1.5	0.18	0.04	21.8	10.7
9	Endocrinology	230	2824	2869	16	60974	1.3	0.16	0.04	21.3	12.5
10	Gastroenterology	730	11565	11511	52	218656	4.3	0.67	0.13	19.0	15.8
11	Haematology	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
12	Nephrology	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
13	Infectious	63.5	1215	1195	8	17341	0.4	0.07	0.01	14.5	18.8
14	Pregnancy and Childbirth	357	6072	6019	1	60587	2.1	0.35	0.04	10.1	16.9
15	Gynecology	1206	34710	34883	16	363577	7.0	2.02	0.21	10.4	28.9
16	Neurology	1915	30440	30447	249	599758	11.2	1.77	0.35	19.7	15.9
17	Dermatovenereology	197	2401	2377	0	49882	1.1	0.14	0.03	21.0	12.1
18	<b>ADULT SURGICAL</b>	<b>5520</b>	<b>106984</b>	<b>106262</b>	<b>797</b>	<b>1644096</b>	<b>32.2</b>	<b>6.23</b>	<b>0.96</b>	<b>15.5</b>	<b>19.3</b>
19	General Surgery	3416	70424	69862	621	1021830	19.9	4.10	0.60	14.6	20.5
20	Neurosurgery	101	1130	1153	19	31778	0.6	0.07	0.02	27.6	11.4
21	Cardiosurgery	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
22	Vascular Surgery	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
23	Thoracic Surgery	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
24	Osteopathy	60	667	684	1	18943	0.3	0.04	0.01	27.7	11.4
25	Traumatology	558	8488	8461	44	169489	3.2	0.49	0.10	20.0	15.2
26	Abscess Surgery	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
27	Urology	319	4764	4739	36	87521	1.9	0.28	0.05	0.0	0.0
28	Proctology	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
29	Oncology	242	2856	2811	66	64606	1.4	0.17	0.04	23.0	11.6
30	Ophthalmology	262	4142	4143	1	72385	1.5	0.24	0.04	17.5	15.8
31	Otolaryngology	562	14513	14409	9	177544	3.3	0.85	0.10	12.3	25.6
32	<b>ADULT LONG-TERM</b>	<b>675</b>	<b>3113</b>	<b>3154</b>	<b>33</b>	<b>182504</b>	<b>3.9</b>	<b>0.18</b>	<b>0.11</b>	<b>57.9</b>	<b>4.7</b>

	A	B	C	D	E	F	G	H	I	J	K
2	Clinical Specialties	Supply of Beds: Annual Average Number	Patients Admitted	Patients Discharged	Died	Patient Days	Bed Supply Rate, Per 10,000	Annual Admission Rate, Percent	Patient Days Per Capita	Average Length of Stay	Patients/ Bed Ratio
33	Tuberculosis	545	1989	1995	31	149868	3.2	0.12	0.09	75.1	3.7
34	Psychiatric	130	1124	1159	2	32636	0.8	0.07	0.02	28.2	8.9
35	Narcology	0	0	0	0	0	0.0	0.00	0.00	0.0	0.0
36	<b>PEDIATRIC</b>	<b>3848</b>	<b>62992</b>	<b>62745</b>	<b>32</b>	<b>1054302</b>	<b>138.5</b>	<b>22.7</b>	<b>3.80</b>	<b>16.8</b>	<b>16.3</b>
37	Internal Medicine: Pediatric (Somatic)	1856	30813	30692	16	509414	66.8	11.1	1.83	16.6	16.5
38	Rheumatology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
39	Allergology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
40	Pulmonology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
41	Endocrinology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
42	Gastroenterology	28	389	396	0	8269	1.0	0.1	0.03	20.9	14.1
43	Haematology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
44	Nephrology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
45	Infectious	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
46	<b>Pediatric Medical</b>	<b>1884</b>	<b>31202</b>	<b>31088</b>	<b>16</b>	<b>517683</b>	<b>67.8</b>	<b>11.2</b>	<b>1.86</b>	<b>16.7</b>	<b>16.5</b>
47	General Surgery	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
48	Neurosurgery	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
49	Osteopathy	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
50	Traumatology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
51	Abscess Surgery	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
52	Urology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
53	Proctology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
54	Oncology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
55	Ophthalmology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
56	Otolaryngology	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
57	<b>Pediatric Surgical</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0.0</b>
58	Tuberculosis	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
59	Psychiatric	80	588	569	0	18936	2.9	0.2	0.07	33.3	7.1
60	<b>Pediatric Long-Term</b>	<b>80</b>	<b>588</b>	<b>569</b>	<b>0</b>	<b>18936</b>	<b>2.9</b>	<b>0.2</b>	<b>0.07</b>	<b>33.3</b>	<b>7.1</b>
61	<b>TOTAL INPATIENT CARE</b>	<b>20539.5</b>	<b>358338</b>	<b>356687</b>	<b>2060</b>	<b>5991850</b>					



	A	B	C	D	E	F	G	H	I	J	K
<b>1</b>	<b>Table 12c. Inpatient Care Resources and Utilization: the CMS/RTU Versus MOH Network, Summary Statistics, 1995</b>										
<b>2</b>		Supply of Beds: Annual Average Number	Patients Admitted	Patients Discharged	Died	Patient Days	Beds, Per 10,000	Annual Admission Rate, Percent	Patient Days Per Capita	Average Length of Stay	Patients/ Bed Ratio
<b>3</b>	<b>MOH Network</b>										
<b>4</b>	ADULT MEDICAL	325533	5934327	5901957	50798	90599152	79.5	14.5	2.21	15.4	18.7
<b>5</b>	ADULT SURGICAL	122891	2728303	2691016	30822	39332544	30.0	6.7	0.96	14.6	21.9
<b>6</b>	ADULT LONG – TERM	101250	1205110	584784	13204	31950255	24.7	2.9	0.78	54.6	5.8
<b>7</b>	PEDIATRIC MEDICAL	64610	1261353	1265704	2670	16796253	61.3	12.0	1.59	13.3	19.6
<b>8</b>	PEDIATRIC SURGICAL	10950	295967	294572	402	3455981	10.4	2.8	0.33	11.7	26.9
<b>9</b>	PEDIATRIC LONG – TER	5526	30224	30240	18	1344697	5.2	0.3	0.13	44.5	5.3
<b>10</b>	<b>CMS/RTU Network</b>										
<b>11</b>	ADULT MEDICAL	10496.5	185249	184526	1198	3110948	61.1	10.8	1.81	16.9	17.6
<b>12</b>	ADULT SURGICAL	5460	106317	105578	796	1625153	32.2	6.2	0.96	15.5	19.3
<b>13</b>	ADULT LONG – TERM	675	3113	3154	33	182504	3.9	0.2	0.11	57.9	4.7
<b>14</b>	PEDIATRIC MEDICAL	1884	31202	31088	16	517683	67.8	11.2	1.86	16.7	16.5
<b>15</b>	PEDIATRIC SURGICAL	0	0	0	0	0	0.0	0.0	0.00	0.0	0.0
<b>16</b>	PEDIATRIC LONG – TER	80	588	569	0	18936	2.9	0.2	0.07	33.3	7.1

	A	B	C	D	E
<b>1</b>	<b>Table 13. Patient Discharges for Selected Diagnoses and Conditions: CMS/RTU Hospitals, 1995</b>				
<b>2</b>		Adults		Children	
<b>3</b>		Cases	Percent	Cases	Percent
<b>4</b>	Inflectious & Parasitic Disorders	3794	1.04	981	1.93
<b>5</b>	Neoplasms	10228	2.80	55	0.11
<b>6</b>	Endocrine, Immune, and Digestion System Disorders	5778	1.58	157	0.31
<b>7</b>	Diabetes mellitus	3466	0.95		0.00
<b>8</b>	Haemopoetic and Blood System Disorders	978	0.27	335	0.66
<b>9</b>	Psychiatric Disorders	4073	1.12	938	1.85
<b>10</b>	Nervous System and Organes of Sense Disorders	20914	5.73	3396	6.69
<b>11</b>	Cardiovascular System Disorders	47676	13.05	682	1.34
<b>12</b>	Hypertonic Disease	7020	1.92		0.00
<b>13</b>	Acute Cardiac Arrest	1370	0.38		0.00
<b>14</b>	Stenocardia	6441	1.76		0.00
<b>15</b>	Cerebrovascular Disorders	9199	2.52		0.00
<b>16</b>	Respiratory System Disorders	34216	9.37	22199	43.74
<b>17</b>	Pneumonia	7602	2.08	2452	4.83
<b>18</b>	Chronic Bronchitis	8642	2.37	553	1.09
<b>19</b>	Bronchial Asthma	2689	0.74	500	0.99
<b>20</b>	Digestion System Disorders	37427	10.25	7158	14.10
<b>21</b>	Gastritis & Duodenitis	5365	1.47	2367	4.66
<b>22</b>	Gall Bladder Disorders & Cholangitis	7540	2.06	2041	4.02
<b>23</b>	Urinary & Genital System Disorders	27790	7.61	1535	3.02
<b>24</b>	Kidney Infections	3043	0.83	753	1.48
<b>25</b>	Chronic Pyelonephritis	1796	0.49		0.00
<b>26</b>	Complications in Pregnancy & Puerperium	29525	8.08		0.0
<b>27</b>	Skin & Subcutenous Tissue disorders	11073	3.03	1598	3.1
<b>28</b>	Skeletal & Muscular System Disorders	35801	9.80	392	0.7
<b>29</b>	Congenital Disorders	308	0.08	272	0.5
<b>30</b>	Unspesified Conditions	337	0.09	150	0.3
<b>31</b>	Unspesified Conditions of the Perinatal Period		0.00	784	1.5
<b>32</b>	Injuries & Poisons	23661	6.48	1455	2.8
<b>33</b>	Fractures	5895	1.61		
<b>34</b>	Burns	950	0.26		
<b>35</b>	Poisons	677	0.19		
<b>36</b>	<b>TOTAL</b>	<b>365274</b>	<b>100.00</b>	<b>50753</b>	<b>100.00</b>

	A	B	C	D	E	F	G	H
<b>1</b>	<b>Table 14. Surgical Activity: CMS/RTU Hospitals, 1995</b>							
<b>2</b>	Railroad Administrations	Number of surgeries	Surgical cases (operated patients)	Surgical activity by number of surgeries, Percent	Surgical activity by number of operated patients, Percent	Number of general anesthetics to operated patients	Surgical letality cases	Surgical letality, cases per 1,000 operated patients
<b>3</b>	Donetsk	15606	14170	24.0	21.8	5988	70	4.94
<b>4</b>	L'viv	10227	9491	21.0	19.5	4814	51	5.35
<b>5</b>	Odessa	12350	12298	23.1	23.0	5675	72	5.84
<b>6</b>	South	11853	11066	27.9	26.1	3787	72	6.51
<b>7</b>	South – Western	14665	13103	21.9	19.6	5141	83	6.33
<b>8</b>	Dneper	10832	10394	22.1	21.2	5217	49	4.71
<b>9</b>	Central Teaching Hospital – Kharkiv	277	266	4.7	4.6	244	15	56.39
<b>10</b>	Central Teaching Hospital – L'viv	1177	896	15.8	12.0	476	0	0.00
<b>11</b>	<b>TOTAL</b>	<b>76987</b>	<b>71684</b>	<b>22.7</b>	<b>21.2</b>	<b>31342</b>	<b>412</b>	<b>5.75</b>

	A	B	C	D	E	F	G	H	I	J	K
<b>1</b>	<b>Table 15. Utilization of Paraclinical Services: the CMS/RTU Network, 1995</b>										
<b>2</b>		Railroad Administrations									
<b>3</b>		Donetsk	L'viv	Odessa	South	South – Western	Dneper	CTH – Khar'kiv	CTH – L'viv	DKhTP	Total or Average
<b>4</b>	<b>EKG</b>										
<b>5</b>	Total tests	84840	164966	107971	132123	169090	108705	27631	38353	3125	836804
<b>6</b>	Inpatient – total number	37921	54800	54917	42733	84731	47984	22079	20200	0	365365
<b>7</b>	Inpatient – per 100 admissions	58.1	112.2	103	100.3	125.7	98.2	381.3	267.5	0	107.6
<b>8</b>	Outpatient – total number	46472	109231	52442	88152	83761	58258	5552	18153	3105	465126
<b>9</b>	Outpatient – per 100 physician visits	2.2	4.3	2.4	3.7	3.2	2.4	89.8	8.2	2	3.2
<b>10</b>	<b>Rehabilitative and Preventive Physical Exercise</b>										
<b>11</b>	Total sessions	237009	88280	124813	167918	414101	244730	30665	182594		1490110
<b>12</b>	Inpatient – total number	171450	48561	72340	116159	259424	158381	30665	71847		928827
<b>13</b>	Inpatient – per 100 admissions	262.9	99.4	135.7	272.6	384.9	324.5	529.5	951.5		273.6
<b>14</b>	Outpatient – total number	65070	39218	51707	51759	154677	84503		110747		557681
<b>15</b>	Outpatient – per 100 physician visits	3	1.6	2.4	2.2	5.8	3.5	0	49.8	0	3.8
<b>16</b>	<b>Physiotherapy</b>										
<b>17</b>	Total sessions	1163997	976662	1168120	1030344	2053243	1227157	145013	702093	30165	8496794
<b>18</b>	Inpatient – total number	566483	510576	647035	499806	1239869	477065	141486	407867		4490187
<b>19</b>	Inpatient – per 100 admissions	868.7	1045.7	1213.6	1172.8	1839.4	977.3	2443.2	5361.7		1322.5
<b>20</b>	Outpatient – total number	582391	455145	518029	530488	811469	748128	3527	294226	30165	3973568
<b>21</b>	Outpatient – per 100 physician visits	27.3	18.1	24.2	22.4	30.7	30.8	57	132.4	19.1	27.2
<b>22</b>	<b>Laboratories</b>										
<b>23</b>	Total tests	2779909	4096914	2633229	3543478	3841708	2977229	253258	383343	72859	20581927
<b>24</b>	Inpatient – total number	1418333	1764952	1234322	1455727	1864204	1277810	237986	321297		9574631
<b>25</b>	Inpatient – per 100 admissions	2175.1	3614.8	2315.2	3415.9	2765.6	2617.8	4109.6	4255		2820
<b>26</b>	Outpatient – total number	1361576	2331962	1398907	2087751	1977504	1699419	15272	62046	72859	11007296
<b>27</b>	Outpatient – per 100 physician visits	59.8	87.4	60.4	81.1	70	65	247	27.4	44.6	75.4
<b>28</b>	<b>X-Ray Diagnostics</b>										
<b>29</b>	Total tests	65935	1053522	101557	103444	113228	106746	8636	10292	10978	626168
<b>30</b>	Inpatient – total number	21185	35087	43323	38022	30831	31931	7409	4477		212265
<b>31</b>	Inpatient – per 100 admissions	32.5	71.9	81.3	89.2	45.7	65.4	127.9	59.3		62.5
<b>32</b>	Outpatient – total number	44750	70265	58234	65422	82397	74815	1227	5815	10978	413903
<b>33</b>	Outpatient – per 100 physician visits	2	2.6	2.5	2.5	2.9	2.9	19.8	2.6	6.7	2.6
<b>34</b>	Diagnostic fluorography	21098	20201	11268	22822	22375	30368			9844	137976

	A	B	C	D	E	F	G	H	I
<b>1</b>	<b>Table 16. Financial Performance Indicators by Industry of Ukraine's Economy, 9 months of 1995</b>								
<b>2</b>		Mining, Manufacturing, & Electric Utilities	Transportation and Communica- tions	Construc- tion	Retail Trade, Eating and Drinking Places	Wholesale Trade; Procurement & Storage	Housing, Water, Gas, and Sanitation; Personal Services	Miscell- aneous	<i>Total</i>
<b>3</b>	<b>Profits</b>								
<b>4</b>	Government	358231.2	200476.2	23417.4	11876.9	14945.1	22223.2	31116.8	662287
<b>5</b>	Cooperative	170537.4	40904	31691.7	16467.2	4562.5	1917.8	13953	280034
<b>6</b>	Both	528768.6	241380.2	55109.1	28344.1	19507.6	24141	45069.8	942320
<b>7</b>	<b>Losses</b>								
<b>8</b>	Government	14850.1	2342.4	452.9	1618.8	162.1	11617.8	1719.3	32763
<b>9</b>	Cooperative	2324.1	50.2	228.2	908.6	570.9	82.6	613	4778
<b>10</b>	Both	17174.2	2392.6	681.1	2527.4	733	11700.4	2332.3	37541
<b>11</b>	<b>Surplus/Deficit</b>								
<b>12</b>	Government	343381.1	198133.8	22964.5	10258.1	14783	10605.4	29397.5	629523
<b>13</b>	Cooperative	168213.3	40853.8	31463.5	15558.6	3991.6	1835.2	13340	275256
<b>14</b>	Both	511594.4	238987.6	54428	25816.7	18774.6	12440.6	42737.5	904779
<b>15</b>	<b>Operating Costs</b>								
<b>16</b>	Government	1807399.4	364089.6	102140.1	40092.6	24040.5	213054.6	104608.8	2655426
<b>17</b>	Cooperative	672547.1	28627.4	110111.4	51991.4	15068.4	34049.7	45443	957838
<b>18</b>	Both	2479946.5	392717	212251.5	92084	39108.9	247104.3	150051.8	3613264
<b>19</b>	<b>Allocation of Profits</b>								
<b>20</b>	<i>Taxes and Contributions for Social Insurance</i>								
<b>21</b>	Government	111004.4	63003.4	7263.5	3762.5	4581.3	6933.4	9434.6	205983
<b>22</b>	Cooperative	50234.6	12404	9140.3	5231	1474.7	653.1	4339.1	83477
<b>23</b>	Both	161239	75407.4	16403.8	8993.5	6056	7586.5	13773.7	289460
<b>24</b>	<b>Allocations to Reserves</b>								
<b>25</b>	Government	7638.7	575	303.4	144	73.8	210.2	740.9	9686
<b>26</b>	Cooperative	3541.3	91.8	924.4	167.8	65.8	22.3	370.6	5184
<b>27</b>	Both	11180	666.8	1227.8	311.8	139.6	232.5	1111.5	14870
<b>28</b>	<b>Allocation of Net Profits</b>								
<b>29</b>	<b>Fixed Investment</b>								
<b>30</b>	Government	113291.5	60804.2	4194.9	2348.4	2296.7	6491.9	6008.7	195436
<b>31</b>	Cooperative	40823.6	17933.3	5688.6	2332.3	748.2	568.5	2564.9	70659
<b>32</b>	Both	154115.1	78737.5	9883.5	4680.7	3044.9	7060.4	8573.6	266096
<b>33</b>	<b>Fringe Benefits</b>								
<b>34</b>	Government	65364.1	20412.8	3362.8	1338.1	1066.7	3220.3	4200.9	98966
<b>35</b>	Cooperative	25188.9	720.7	4979.5	1102.8	258.9	247.1	1249	33748
<b>36</b>	Both	90553	21133.5	8342.3	2440.9	1325.6	3467.4	5449.9	132714
<b>37</b>	<b>Cash Bonuses</b>								
<b>38</b>	Government	41808.6	23468.2	5234.6	2901.7	1765.8	5775.4	6509.2	87464
<b>39</b>	Cooperative	25970.9	902	6344.2	2085.4	626.8	546.6	2216.1	38692
<b>40</b>	Both	67779.5	24370.2	11578.8	4987.1	2392.6	6322	8725.3	126156
<b>41</b>	<b>Charity</b>								
<b>42</b>	Government	358.7	636.1	29	57.3	81.1	83.5	84.7	1330
<b>43</b>	Cooperative	1010	41.9	298.6	79.9	13.8	10.5	157.4	1612
<b>44</b>	Both	1368.7	678	327.6	137.2	94.9	94	242.1	2943
<b>45</b>	<b>Other Allocations</b>								
<b>46</b>	Government	45751.6	22323.5	2672.6	1586	1838.1	2480.8	2803.1	79456
<b>47</b>	Cooperative	19227	647.6	3368.8	3708.4	1254.1	122.4	1802.4	30131
<b>48</b>	Both	64978.6	22971.1	6041.4	5294.4	3092.2	2603.2	4605.5	109586
<b>49</b>	<b>Addenda</b>								
<b>50</b>	Employment, 1,000 FTE	5397.9	1376.5	1209.6	897.7	455.9	4040.0	1983.6	15361
<b>51</b>	Annual Profits	528768.6	241380.2	55109.1	28344.1	19507.6	24141	45069.8	942320
<b>52</b>	Monthly Profits Per Employee	8163	14613	3797	2631	3566	498	1893	5112

	A	B	C	D	E	F	G	H
<b>1</b>	<b>Table 17. Revenue Formation and Disbursement: Railroad Transportation Ukraine, 1995, Billion Krb</b>							
<b>2</b>		Total	Donetsk	Dneper	South	South – Western	Odessa	L'viv
<b>3</b>	Sales Revenue: Railroad Passenger and Cargo Freight	234633	41229	45353	28625	48749	37031	33646
<b>4</b>	Sales Revenue: Ancilliary Services	72351	15990	12162	7456	9649	9330	17765
<b>5</b>	Sales Revenue: Local	5668	448	962	764	974	1292	1227
<b>6</b>	<i>Sales Revenue, Total</i>	<i>312652</i>	<i>57666</i>	<i>58477</i>	<i>36846</i>	<i>59373</i>	<i>47653</i>	<i>52638</i>
<b>7</b>	Profits: Railroad Passenger and Cargo Freight	56167	11941	13589	4068	13703	8523	4343
<b>8</b>	Profits: Ancilliary Services	37147	4175	7947	5266	4425	5295	10039
<b>9</b>	Profits: Local	3135	239	565	400	527	1007	397
<b>10</b>	<i>Profits, Total</i>	<i>96448</i>	<i>16355</i>	<i>22101</i>	<i>9733</i>	<i>18655</i>	<i>14824</i>	<i>14779</i>
<b>11</b>	<i>Production Costs</i>	<i>216205</i>	<i>41311</i>	<i>36375</i>	<i>27113</i>	<i>40717</i>	<i>32829</i>	<i>37859</i>
<b>12</b>	Profit Margin: Profits – to – Sales Ratio, Percent	31	28	38	26	31	31	28
<b>13</b>	<i>Wages and Salaries</i>	<i>36700</i>	<i>6787</i>	<i>6541</i>	<i>4494</i>	<i>6698</i>	<i>5526</i>	<i>6655</i>
<b>14</b>	Taxes, Interest, Punitive, and Miscellaneous Mandatory Payments	60762	10304	13924	6132	11753	9339	9310
<b>15</b>	Net Profits	35686	6051	8178	3601	6902	5485	5468
<b>16</b>	<i>Net Profits Adjusted for Statistical Discrepancy</i>	<i>38600</i>	<i>6546</i>	<i>8845</i>	<i>3895</i>	<i>7466</i>	<i>5933</i>	<i>5915</i>
<b>17</b>	Monthly Average Wages and Salaries, Krb 1,000	9758	9775	9994	8875	9800	9521	10372
<b>18</b>	Annual Per Capita Wages and Salaries, Krb 1,000	117091	117301	119929	106504	117605	114253	124460
<b>19</b>	Railroad Employees: Physical Persons	775438	123521	133179	140673	153585	106222	118258
<b>20</b>	Railroad Employees: Physical Persons, Percent Distribution	100	16	17	18	20	14	15
<b>21</b>	Railroad Employees, Annual Average FTE	420534	66988	72225	76290	83292	57606	64133
<b>22</b>	<i>Social Benefits: Allocated</i>	<i>11387</i>	<i>2680</i>	<i>2239</i>	<i>1907</i>	<i>2249</i>	<i>1671</i>	<i>641</i>
<b>23</b>	Cash Bonuses: Disbursed	7705	1809	2022	1068	1000	1037	770
<b>24</b>	<i>Cash Bonuses: Allocated</i>	<i>10900</i>	<i>2559</i>	<i>2861</i>	<i>1511</i>	<i>1414</i>	<i>1467</i>	<i>1089</i>
<b>25</b>	<i>Investments</i>	<i>16313</i>	<i>1307</i>	<i>3746</i>	<i>477</i>	<i>3803</i>	<i>2795</i>	<i>4185</i>
<b>26</b>	Net Subsidies to Industry – Operated Housing out of Social Benefits	3220	1018	607	290	618	397	290
<b>27</b>	<i>Social Benefits Allocated: Net of Subsidies to Industry–Operated Housing</i>	<i>8167</i>	<i>1662</i>	<i>1632</i>	<i>1617</i>	<i>1631</i>	<i>1274</i>	<i>351</i>